

United States Court of Appeals for the Federal Circuit

NINGDE AMPEREX TECHNOLOGY LTD.,

Plaintiff-Cross-Appellant,

v.

ZHUHAI COSMX BATTERY CO., LTD.,

Defendant-Appellant.

Appeal from the United States District Court for the Eastern District of Texas
No. 2:22-cv-00232-JRG, Hon. J. Rodney Gilstrap

**NON-CONFIDENTIAL BRIEF FOR APPELLANT
ZHUHAI COSMX BATTERY CO., LTD**

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January 8, 2025

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CERTIFICATE OF INTEREST

Case Nos. 25-1037, -1091

Ningde Amperex Technology Ltd. v. Zhuhai CosMx Battery Co., Ltd.

Filing Party/Entity: Zhuhai CosMX Battery Co., Ltd.

I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.

Date: January 8, 2025 Signature: /s/ Jonathan S. Franklin

Name: Jonathan S. Franklin

1. Represented Entities (Fed. Cir. R. 47.4(a)(1)) – Provide the full names of all entities represented by undersigned counsel in this case.

Zhuhai CosMX Battery Co., Ltd.

2. Real Party in Interest (Fed. Cir. R. 47.4(a)(2)) – Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities.

None

3. Parent Corporations and Stockholders (Fed. Cir. R. 47.4(a)(3)) – Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities.

None

4. Legal Representatives – List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

Layne Edwin Kruse; Darryl Wade Anderson; Eric Conley Green; Abraham Chang; Daniel Shuminer; Zachery Newton; Marisa Madaras; Dewey Jude Gonsoulin, III; Eric Hugh Findlay; Findlay Craft, P.C.; Finnegan,

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5. Related Cases – Other than the originating case(s) for this case, are there related or prior cases that meet the criteria under Fed. Cir. R. 47.5(a)?

Yes

6. Organizational Victims and Bankruptcy Cases – Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

None

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STATEMENT OF RELATED CASES

Pursuant to Federal Circuit Rule 47.5, appellant Zhuhai CosMX Battery Co., Ltd. states that no other appeal in or from the same civil action or proceeding in the originating tribunal was previously before this or any other appellate court. The following case known to counsel may be directly affected by this Court's decision in this case: *Ningde Amperex Tech. Ltd. v. Zhuhai CosMX Battery Co., Ltd.*, No. 2:24-cv-00728-JRG (E.D. Tex.) (filed Sept. 6, 2024).

JURISDICTIONAL STATEMENT

The United States District Court for the Eastern District of Texas had jurisdiction under 15 U.S.C. §§ 15 and 26 and 28 U.S.C. §§ 1331, 1337(a), 1338(a), 1367, and 2201-02. That court entered final judgment on September 3, 2024. Appx537-540. The parties timely appealed, Appx30995-30997, Appx31003-31006, and this Court has jurisdiction under 28 U.S.C. § 1295(a)(1).

STATEMENT OF THE ISSUES

1. Whether the district court erred in attempting to distinguish this Court's decision in *Cyntec Co. v. Chilisin Electronics Corp.*, 84 F.4th 979, 990 (Fed. Cir. 2023), which excluded as “unreliable and speculative” an expert opinion that estimated the number of infringing sales in the United States through a methodology materially identical to the one plaintiff proffered here.

2. Whether a claim for induced infringement under 35 U.S.C. § 271(b) can be based on a defendant's actions taken abroad.

3. Whether the district court erred in holding that a civil antitrust claimant seeking to overcome *Noerr-Pennington* protection by alleging a “sham” assertion of foreign patents must satisfy the heightened “clear and convincing” evidentiary burden rather than the normal preponderance of the evidence burden.

INTRODUCTION

A product cannot infringe a U.S. patent—or be the subject of a claim for inducing such infringement—if the product never enters the United States. Likewise, induced-infringement damages cannot be awarded unless the patentee proves sufficient corresponding acts of underlying infringement in the United States. This Court squarely held in *Cyntec*, 84 F.4th at 979, that it is impermissible for a plaintiff or its damages expert to try to do so by simply assuming that every alleged third-party infringer necessarily imports accused products at a rate identical to the percentage of all companywide revenue that third party derives from U.S. sales. *Cyntec* held that such an effort to substitute a company’s **overall** revenues, including those derived from irrelevant products and services, for proof specific to the accused product, is impermissibly “unreliable and speculative.” *Id.* at 989-90.

Yet in this case, the district court erroneously permitted precisely the same methodology *Cyntec* held to be unreliable, speculative, and inadmissible. Defendant-appellant Zhuhai CosMX Battery Co., Ltd. (“CosMX”) manufactures battery cells, and plaintiff-cross-appellant Ningde Amperex Technology Ltd. (“ATL”) asserted that CosMX’s cells infringed three of ATL’s U.S. patents. After trial, ATL obtained a judgment that CosMX infringed one of those patents. The overwhelming majority of ATL’s alleged damages were tied to its claim that CosMX improperly induced infringement through extraterritorial sales of battery

cells to downstream foreign companies which, in turn, packaged them into batteries that were eventually incorporated into products (such as laptops and cellphones) that other companies allegedly sold in the United States. In an attempt to prove the amount of those U.S. sales, ATL offered a methodology materially identical to the one this Court rejected in *Cyntec*. ATL’s expert simply took public reports showing the U.S. percentage of the **overall** global revenues of large companies like Amazon, HP, and Dell—which were earned from myriad products and services unrelated to ATL’s battery-cell patents—and applied that percentage to CosMX’s foreign sales of allegedly infringing battery cells. Yet even though the methodology was the exact one this Court rejected in *Cyntec*, the district court admitted the evidence because, in its view, *Cyntec*’s holding ceases to apply if a plaintiff seeks a “reasonable royalty” rather than lost profits.

That holding is wrong as a matter of law and warrants reversal. Whether a plaintiff seeks lost profits or a reasonable royalty, it must still prove the same fact: the number of infringing U.S. sales. Under *Cyntec*, that key fact cannot be proven through a crude total-revenues methodology that does not distinguish between sales of infringing products and sales of other irrelevant products and services having nothing to do with the asserted patents. *Cyntec*’s core holding in no way depends on whether the methodology’s flawed output—an unreliable, speculative assumption about the number of infringing U.S. sales—is used to calculate lost

profits or a reasonable royalty. Indeed, *Cyntec* itself merely applied the holdings of two prior reasonable-royalty cases. In either circumstance—reasonable royalty or lost profits—garbage in is garbage out. Thus, because ATL’s induced-infringement claim was unsupported by any non-speculative, reliable evidence, the Court should reverse the judgment on that claim and limit ATL’s recovery to the very small amount of damages awarded on its direct-infringement claim. Moreover, although the Court need not decide the issue in light of the expert’s legally flawed methodology, it can also reach the same result on the alternative ground that CosMX’s actions that allegedly “induced” U.S. sales occurred abroad and deeming those actions “infringement” would be an impermissible extraterritorial application of U.S. patent law.

The other principal issue on appeal pertains to CosMX’s antitrust counterclaim, which is based on ATL’s having threatened and ultimately filed sham litigation against CosMX based on Chinese patents with the intention of interfering with the initial public offering (“IPO”) of CosMX’s stock. To show litigation is “sham” (and thus overcome “*Noerr-Pennington*” immunity, which often shields litigation conduct from liability), an antitrust plaintiff must satisfy a substantive standard requiring, *inter alia*, that no reasonable litigant could have reasonably expected success on the merits. *See Pro. Real Est. Invs., Inc. v. Columbia Pictures Indus., Inc.*, 508 U.S. 49, 60 (1993) (“*PRE*”). Two circuits—

including the Fifth Circuit, whose law governs CosMX’s antitrust claim involving a sham assertion of foreign patents—have squarely held that the ordinary preponderance standard applies to that claim. Given the robust substantive standard, there is “no reason to impose” a heightened, clear-and-convincing “burden of proof on the antitrust plaintiff asserting sham.” *Litton Sys., Inc. v. Am. Tel. & Tel. Co.*, 700 F.2d 785, 813-14 (2d Cir. 1983); *see also Mid-Texas Commc’ns Sys., Inc. v. Am. Tel. & Tel. Co.*, 615 F.2d 1372, 1384 n.10 (5th Cir. 1980). Yet over CosMX’s objections, the district court did just that in both the jury instructions and verdict form, while providing no reasoning to support its result. The judgment on the antitrust counterclaim should thus be reversed.

STATEMENT OF THE CASE

A. The Claims.

ATL and CosMX are both Chinese companies that compete in manufacturing lithium-ion battery cells. Appx2885. Neither CosMX nor ATL makes or sells the end products (such as laptops and smartphones) into which their products are eventually incorporated. Appx24331-24333. Indeed, they do not even make or sell batteries. Instead, both make battery “cells,” which they ship to other Chinese “pack house[]” companies that package the cells into batteries. Appx18014; Appx24316; Appx24330-24331 These pack houses then ship the batteries to other intermediary foreign companies that manufacture the end

products. Appx24331-24332. Only then are the battery cells finally shipped—as components within components of those end products—to brand companies such as HP and Dell, who then, in turn, sell the end products throughout the world. Appx24332; Appx24909; Appx24927.

ATL brought this suit in 2022, asserting infringement of four U.S. patents pertaining to lithium-ion battery cells. Appx1346. ATL dropped one of the four U.S. patents shortly after CosMX filed its first answer. *See, e.g.*, Appx4717. In 2022, CosMX filed antitrust counterclaims alleging that in 2021, almost immediately after the announcement that CosMX would soon offer its shares for sale on the Shanghai Stock Exchange, ATL publicly threatened CosMX with objectively meritless infringement suits based on eight Chinese patents and did so for the sole purpose of undermining and hindering CosMX’s ability to grow and compete in a global market. Appx2884-2890, Appx2898-2901; *see also* Appx7393-7409 (CosMX’s 2023 amendments to its counterclaims). As of trial in this case, ATL had filed infringement lawsuits in Chinese courts asserting five of these eight Chinese patents, but had withdrawn three of those cases after invalidation of two of the patents at issue. Appx25255; Appx35830-35834. The jury in this case found invalid the asserted claims of two of the three U.S. patents asserted by ATL, but found willful infringement of two claims of the remaining patent, U.S. Patent No. 10,964,987 (the “’987 patent”). *See* Appx23961-23964.

B. ATL's Methodology For Calculating The Number Of Infringements Supporting Its Inducement Claim.

To the extent ATL is entitled to any damages on its patent infringement claims, those damages can only be for products that reached the United States. *See, e.g.*, 35 U.S.C. § 271 (infringement occurs only when product is “within the United States”). It is undisputed, however, that CosMX directly ships very few products to the United States and, as a result of its complex supply chain, does not know how many, let alone which, of the products it sells overseas reach this country, and that it has no control over where its end customers ship products containing CosMX cells once they are delivered to the pack houses. *See, e.g.*, Appx24286; Appx24332-24333. ATL also does not know those facts; indeed, it does not even know how many of *its own* products reach the United States. Appx14442-14445; Appx14356-14357; Appx24286.

The obvious way for ATL to have avoided that issue would have been to sue end customers, such as HP and Dell, for direct infringement as to any allegedly infringing CosMX products that are components of products they import into or sell in the United States. But instead, ATL chose to primarily pursue induced-infringement claims against CosMX based on the U.S. sales of third-party products containing CosMX battery cells. As a result, ATL was required to present legally admissible evidence proving the amount of those U.S. sales.

This Court issued *Cyntec* months before the trial in this case. Yet rather than seek to account for that decision, ATL stuck with its proffered expert, Alan Ratliff, who employed the same crude-estimate methodology *Cyntec* rejected. Just like the proffered expert in *Cyntec*, Ratliff calculated damages for allegedly indirectly infringing third-party U.S. sales by first determining each end customer's worldwide and U.S. revenue through publicly available information such as 10-K filings and annual reports. Appx14290-14291; Appx14332-14333; Appx14458-14459; Appx14466-14467. He then used those numbers to determine the percentage of the customer's total revenue generated from sales or services in the United States, and assumed—with no further evidence or corroboration—that the customer imported CosMX's products at precisely the same rate. *Id.*; *see also* Appx14326-14333; Appx14452-14459; Appx24298-24299. For example, if an end customer earned from the United States 50% of its worldwide revenue on all products and services, Ratliff calculated damages on the assumption that the customer also imported CosMX products into the United States at a 50% rate.

The end customers in question include massive corporations such as HP, Dell, Amazon, Meta, Alphabet, Philip Morris International, and British American Tobacco. *See, e.g.*, Appx14332. Yet just as in *Cyntec*, the revenue numbers Ratliff employed included revenue for *all* products and services provided by each customer, not just products with CosMX cells. Appx14466-14467. The numbers

incorporate revenue from a virtually endless collection of products and services having nothing to do with anything that could have included a CosMX product. For instance, as to Amazon, the overall numbers from which Ratliff extrapolated reflect revenue associated with products and services such as commissions from third-party seller services, subscription services, advertising services, Amazon Web Services, licensing and distribution of video content, and shipping services, as well as the vast array of products and merchandise Amazon sells that have nothing whatsoever to do with lithium-ion batteries. Appx14486-14488.

And Amazon is just one example among many other end customers:

- Lenovo, a large purchaser of CosMX battery cells, generated over 20% of its revenue from its “Infrastructure Solutions Group” and “Solutions and Services Group,” which include servers, storage, and software products having nothing to do with lithium-ion batteries;
- ASUS, another large customer, touts along with its revenue data that it has the largest global market share for “motherboards,” which do not have lithium-ion batteries;
- HP, another significant customer, attributes substantial revenue to “Printing,” which includes printer hardware, supplies, services and solutions, as well as 3D printing supplies;

- Alphabet (Google) earned 80.3% of its revenue from “Google Advertising”;
- British American Tobacco earned 85.8% of its revenue from “Combustibles” (*i.e.*, cigarettes);
- Philip Morris earned 71.2% of its revenue from “Combustible Tobacco”;
- Dell earned 18.9% of its revenue from “Servers and Networking” and 17.5% from “Storage”;
- Electrolux earned 91.1% of its revenue from cooking and dish/laundry appliances;
- Meta earned 97.6% of its revenue from “Advertising”;
- Microsoft earned 34.6% of its revenue from “Server Products & Cloud Services,” 11.9% from Windows, 8.1% from “Gaming,” 6.8% from LinkedIn, 5.7% from “Search and News Advertisings,” and 3.8% from “Enterprise Services”;
- Nokia earned 44.7% of its revenue from “Mobile Networks,” 33.9% from “Network Infrastructure,” and 13.8% from “Cloud and Network Services”;
- Samsung earned 24.3% of its revenues from “Memory,” 11.4% from “Display Panels,” and 11.1% from “Image Devices.” The record

contains no suggestion that any of those categories has anything to do with lithium-ion batteries.

Appx14361; Appx14397-14415; Appx14490-14494 Appx14496-14498; Appx14500-14503.

Ratliff provided no basis to believe that merely because Amazon derives a particular portion of its overall revenue, including advertising or digital media, in the United States, it imports at exactly that same rate smartphones and laptops containing CosMX battery cells. Nor did he justify the corresponding assumption for any other customer. Moreover, he had to indulge still further assumptions, many of which are not merely unsupported but demonstrably wrong. For instance, some customers (such as Lenovo) do not report revenue solely for the United States, and instead do so for broader regions such as the “Americas,” which includes all of North America, Central America and South America. Appx14480-14481; Appx14494; Appx24305. Yet for these customers, Ratliff employed the same methodology described above, while simply pretending that the entirety of that regionwide revenue was derived in the United States. Appx14332-14333; Appx14458-14459; Appx24306. He did so despite openly conceding that the reported data was “much broader than just the United States.” Appx24306.

For still other customers that did not publicly report their revenue data by country or region, such as Bose (a U.S. audio equipment company), Blue Sky

Corporation (a subsidiary of a Taiwanese laptop manufacturer), and ZTE (a Chinese telecommunications company), Ratliff simply averaged out the data provided by other customers and pretended the resulting percentages of U.S. revenue applied to each. Appx14332-14333; Appx14458-14459; Appx14483-14484; Appx24288-24289. Here too, Ratliff failed to even attempt to justify the massive inferential leaps on which his methodology is predicated. For instance, Ratliff and ATL made no attempt to provide that those three very different companies happen to derive the exact same proportion of their revenue from the United States, even though one is American, two are East Asian, and they share little else in common beyond using CosMX cells in some products. Nor did Ratliff and ATL attempt to support the further absurd notion that those three companies' U.S. revenues can be determined by ignoring all information specific to the companies themselves and instead averaging the U.S. revenue percentages of British tobacco firms and numerous other unrelated companies.

ATL also brought direct-infringement claims for the relatively small amount of battery cells that CosMX shipped directly to the United States, which ATL verified through CosMX's sales records. Appx24284-24285. These direct sales constituted a "very, very small part"—less than 1%—of all accused sales. *Id.* According to ATL's expert, such direct sales that allegedly infringed the '987 patent amounted to only \$162,914 through trial, which is only 0.03224% of the

total \$505,321,735 in purported U.S. sales constituting his royalty base for that patent. Appx14448; Appx87867. Thus, the direct sales accounted for only \$1,193 (0.03224%) of the total \$3,701,108 in damages claimed by ATL and awarded by the jury for infringement of that patent. *See id.*; Appx23975.

C. CosMX's *Daubert* Motion.

After deposing Ratliff, CosMX moved to exclude his opinion pursuant to Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). Appx14255-14507. In so moving, CosMX relied chiefly on *Cyntec*, a case with materially identical facts that this Court issued roughly three weeks after Ratliff proffered his expert opinion in September 2023. Appx14265-14270.

In *Cyntec*, the accused products were components found in modern electronics. 84 F.4th at 982. The plaintiff (Cyntec) asserted, as ATL did here, that third-party companies purchased the accused components outside the United States and then placed them into devices that were then imported into the United States. *Id.* at 983. In an effort to prove the number of infringing U.S. sales (and thus the amount of damages), Cyntec's proffered expert (1) "estimated the amount of [Defendant's] sales of accused products imported into the United States ... using U.S. Securities and Exchange Commission (SEC) filings or annual reports of customers who purchased or acquired any of the alleged infringing products, as

well as third-party data,” (2) “determined each customer’s importation rate by dividing the customer’s U.S. revenue by its total worldwide revenue,” and then, finally, (3) estimated the revenue subject to damages “[b]y ‘multiplying [the Defendant’s] accused revenues made outside of the U.S. by the U.S. importation rates for each identified customer.’” *Id* at 988-89 (citation omitted). In other words, the expert’s methodology was materially identical to Ratliff’s.

In *Cyntec*, the district court permitted that methodology under *Daubert*, but this Court reversed, holding that the methodology was “both unreliable and speculative,” and thus inadmissible, because the sales data on which the expert had relied “contain[ed] the sales of products and services that cannot or do not contain the accused” products themselves. 84 F.4th at 989-90. In so concluding, this Court relied almost entirely on two of its prior cases, *Power Integrations v. Fairchild Semiconductor International, Inc.*, 711 F.3d 1348, 1357 (Fed. Cir. 2013), and *Niazi Licensing Corp. v. St. Jude Medical S.C., Inc.*, 30 F.4th 1339, 1343-44 (Fed. Cir. 2022), both of which it discussed extensively.¹ *Cyntec*, 84 F.4th at 987-90. While the damages theory at issue in *Cyntec* was a lost-profits model, the experts in both *Power Integrations* and *Niazi* sought (as did Ratliff here) to prove damages in part based on a reasonable royalty. *See Power Integrations*, 711 F.3d

¹ *Power Integrations* has been superseded on other grounds as noted in *Brumfield v. IBG LLC*, 97 F.4th 854, 871 (Fed. Cir. 2024).

at 1376; *Niazi*, 30 F.4th at 1356-57. In both cases, the Court deemed the expert testimony inadmissible.

The district court here did **not** find that Ratliff's methodology materially differed from the methodology disapproved in *Cyntec*. To the contrary, it noted the "similarities between Mr. Ratliff's analysis and that of the expert in *Cyntec*." Appx291. Nevertheless, it denied CosMX's *Daubert* motion and admitted Ratliff's methodology because "Ratliff conducted a reasonable royalty analysis while the expert in *Cyntec* conducted a lost profits analysis." *Id.*

The court's analysis, issued orally from the bench and later summarized in a written order, was as follows:

I find that *Cyntec* is distinguishable from this case, primarily on the basis that that case seeks a lost profits calculation, and this is a reasonable royalty calculation within a hypothetical negotiation. Lost profits happen in the real world; reasonable royalty comes out of a hypothetical negotiation that never took place in the real world. These are completely different constructs. Well, they are markedly and materially different constructs, and I think that's an adequate distinction that would avoid the preclusive effect *Cyntec* might otherwise have given what we have before us.

Appx135; *see also* Appx291; Appx22859. In addition, the district court relied on the fact that, in its view, it would have been difficult for ATL to have obtained direct evidence of U.S. sales of lithium-ion-battery-containing products from the third-party end customers. *See* Appx134.

Ultimately, Ratliff repeated at trial the opinions CosMX had sought to exclude, as well as the concessions CosMX's *Daubert* motion invoked. Appx24248-24312. He admitted that he could not identify even a single product in the United States that could support an induced-infringement claim. *See* Appx24297. And he reiterated the core features of his methodology described above. To determine how many infringing CosMX cells were sold in the U.S., Ratliff took the total worldwide and U.S. revenue of various CosMX end customers for all sales as set forth in public SEC reports—including numerous products and services having nothing to do with CosMX's products—"divided the U.S. sales by the worldwide sales" and then took that overall percentage and multiplied it by the amount of CosMX sales involving that particular customer. Appx24298; Appx24301 (numbers included "all sales made, not just with lithium-ion battery sales"); Appx24304 (same). And Ratliff further admitted that, for some customers that did not separately break out U.S. revenues in their public reports, his estimate of U.S. sales included sales in Canada, Mexico, Central America and South America. *See* Appx24305-24307. Finally, he admitted that for companies for which he lacked public information, he just used the average U.S. revenues of the other customers. Appx24288-24289.

D. The Jury Instructions, Verdict, And Final Judgment.

ATL raised a *Noerr-Pennington* defense to CosMX's antitrust counterclaim. *See, e.g., Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 572 U.S. 545, 555-56 (2014) ("Under the *Noerr-Pennington* doctrine[,] . . . defendants are immune from antitrust liability for engaging in conduct (including litigation) aimed at influencing decisionmaking by the government." (quoting *PRE*, 508 U.S. at 56, and citing *United Mine Workers v. Pennington*, 381 U.S. 657 (1965) and *Eastern R.R. Presidents Conf. v. Noerr Motor Freight, Inc.*, 365 U.S. 127 (1961))). In response, CosMX asserted that ATL's 2021 letter and threatened lawsuits regarding its Chinese patents were "sham"—*i.e.*, that although "ostensibly directed toward influencing governmental action," they "d[id] not qualify for *Noerr* immunity" because they were an "objectively baseless . . . attempt to interfere directly with the business relationships of" CosMX, "a competitor." *Id.* (quoting *PRE*, 508 U.S. at 60-61).

CosMX presented evidence supporting application of the sham exception, including direct testimony that ATL's litigation threat was objectively baseless and subjectively anticompetitive. *See, e.g.*, Appx25253-25256; Appx25268-25270; Appx25273-25274; Appx31466-31698; Appx35830-35834. CosMX then properly objected to ATL's proposed jury instructions, which required "clear and convincing" evidence for the sham issue. Appx22166; Appx22183-22184;

Appx306. But the district court overruled CosMX’s objection and incorporated that heightened evidentiary standard into the jury instructions and verdict form. Appx306; Appx23939; Appx23976. The jury then found that CosMX did not “prove by clear and convincing evidence that ATL’s threat of Chinese patent litigation . . . was both objectively baseless *and* an attempt to interfere directly with the business relationships of one or more competitors through the use of the litigation process.” Appx23976.

The jury also found the ‘987 patent valid and willfully infringed, and awarded \$3,701,108 in damages, Appx23975, which was the exact number that Ratliff produced based on the methodology that CosMX had unsuccessfully sought to exclude, *see* Appx14255-14507; Appx24290; Appx87867. As noted above, *see supra* at 12-13, all but \$1,193 of those damages related to ATL’s claims of induced infringement as allegedly supported by Ratliff’s methodology of comparing end customers’ total worldwide revenue with purported total U.S. revenues. The jury found the other two asserted patents invalid. Appx23973.

CosMX moved for judgment as a matter of law or, alternatively, a new trial. *See* Appx30191-30211. CosMX argued, among other things, that ATL failed to prove induced infringement. First, CosMX reiterated the argument, which the district court had already rejected before trial, that Ratliff’s methodology should have been excluded, and, in any event, could not support a finding of induced

infringement because Ratliff looked to data that included sales having nothing to do with lithium-ion batteries or products involving them. Appx30206. CosMX also “expressly preserve[d] for appellate and Supreme Court review the argument that ATL failed to prove indirect infringement because all of the activities alleged to constitute such infringement occurred extraterritorially.” *Id.* (citing, *inter alia*, Robert H. Stier, Jr., *Extraterritoriality and the Active Inducement of Infringement*, 19 UIC Rev. Intell. Prop. L. 204 (2020)). For these reasons, CosMX argued that “the damages award should be modified to exclude all damages Ratliff attributed to the indirect infringement ATL failed to prove, which constitute more than 99% of the damages the jury awarded.” Appx30207.

In denying CosMX’s motion, the district court did not further elaborate on its prior decision upholding the admissibility of Ratliff’s testimony. Instead, it held that ATL had proved that unspecified instances of induced infringement occurred based on testimony that CosMX’s employees in China communicate with some end customers that sell some products in the United States, and that CosMX tailors its products to those customers’ specifications and certifies them for the U.S. market as well as others. Appx555 (citing Appx30654, Appx24343; Appx24324). As to CosMX’s argument that predicated induced infringement on such actions, all of which took place abroad, would be an impermissibly extraterritorial application of U.S. law, the district court noted that this Court had

rejected that argument in *Merial Ltd. v. Cipla Ltd.*, 681 F.3d 1283 (Fed. Cir. 2012), five years before *RJR* was decided. *See* Appx556.

The parties then stipulated, based on the jury's damages, to additional supplemental damages and prejudgment interest of \$459,127, while reserving all their appellate rights. Appx30212-30217; Appx30879.² The parties also stipulated to a future running royalty rate based on Ratliff's methodology while expressly reserving CosMX's right to challenge the royalty base calculation before this Court and to move the district court to alter the running royalty if this Court modifies, grants a new trial on, or otherwise affects the damages. Appx30880-30883. The district court then entered an amended final judgment that, *inter alia*, awarded ATL \$3,701,108 in damages for CosMX's alleged infringement of the '987 patent, plus \$1,000,000 in enhanced damages based on the jury's willfulness finding. Appx537-540. The Court also awarded the stipulated supplemental damages, prejudgment interest, and running royalty. Appx539-540.

This appeal and cross-appeal followed.

² Applying Ratliff's 0.03224% ratio, *see supra* at 12, the amount of the supplemental damages and prejudgment interest attributable to the direct infringement was a mere \$148, yielding a total award of \$1,341.

SUMMARY OF THE ARGUMENT

The district court reversibly erred on three foundational questions of law. First, this Court’s decision in *Cyntec* cannot be ignored simply because an expert uses the impermissible methodology in question to determine a purportedly reasonable royalty rather than lost profits. Second, and in the alternative, the judgment for induced infringement should also be reversed because it is based on actions taken by CosMX abroad and therefore is an impermissible extraterritorial application of 35 U.S.C. § 271(b) under the Supreme Court’s test in *RJR Nabisco, Inc. v. European Community*, 579 U.S. 325 (2016). Third, as to CosMX’s antitrust counterclaim, which relies entirely on ATL’s baseless assertion of Chinese patents, proof of the “sham” exception does not require clear-and-convincing evidence but rather only a preponderance.

First, ATL could not prevail on its inducement claim without proving the number of allegedly infringing sales in the United States that CosMX purportedly induced. To determine that number, however, ATL’s expert (Ratliff) used a methodology materially identical to the one that this Court held in *Cyntec* is impermissibly “unreliable and speculative” and therefore inadmissible. 84 F.4th at 990. As did the expert in *Cyntec*, Ratliff attempted to measure third-party customers’ U.S. sales of infringing products by taking public reports showing the U.S. percentage of the worldwide revenues of those customers for *all* their

products and services—most of which have nothing to do with the accused battery cells—and then multiplying CosMX’s sales by that percentage. In fact, Ratliff’s methodology is even more unreliable and speculative than the one rejected in *Cyntec*, because for some customers, he pretended that their sales in all of the “Americas” (including Canada, Mexico, and Central and South America) were made in the United States, and for other customers, he had no data at all and just used an average of the (flawed) percentages derived for other customers.

The district court’s explanation for admitting the methodology notwithstanding *Cyntec*—that *Cyntec* involved a lost-profits theory—fails as a matter of law. In both cases, the methodology is being used to derive the exact same number: the amount of allegedly infringing sales in the United States. Thus, because Ratliff’s methodology for calculating that number is at best materially identical to (and in fact even more profoundly flawed than) the methodology excluded in *Cyntec*, it is likewise inadmissible. Indeed, *Cyntec* merely relied on this Court’s holdings in *Power Integrations* and *Niazi*, both of which involved reasonable royalties, so there can be no doubt that *Cyntec* applies here. And even if *Cyntec* did not apply directly, *Power Integrations* and *Niazi* unquestionably do, and they mandate the same result, just as they did in *Cyntec* itself.

In addition, the district court’s distinction between lost profits and reasonable royalty, based on the “hypothetical negotiation” used in the latter

measure, is immaterial here. The hypothetical negotiation used to calculate a reasonable royalty derives the royalty *rate*—which is not at issue in this appeal—not the royalty *base*, which is the “real world” amount that Ratliff’s impermissible methodology purported to measure and that is also used in lost-profits cases.

Indeed, Ratliff’s testimony regarding that negotiation had nothing to do with his measurement of the number of infringing sales. Finally, the Court should reverse the judgment for induced infringement without remanding for a new trial on that issue. Without Ratliff’s faulty methodology, which ATL knew well before trial was the same as the one rejected in *Cyntec*, the verdict for inducement cannot stand. And as this Court has previously held, because ATL elected to proceed solely with that flawed model, without ever suggesting or attempting to prove the number of infringements in any other manner, it affirmatively waived any right to start over and try again.

Although *Cyntec*, *Power Integrations*, and *Niazi* mandate reversal of the inducement judgment without the need to consider any other arguments, the Court can alternatively reach the same result by holding that the imposition of induced-infringement liability on CosMX based on actions CosMX took abroad in China is an impermissible extraterritorial application of the U.S. patent laws under the test set forth in *RJR*. This Court’s 2012 decision to the contrary in *Merial* is no longer good law after *RJR*. Whereas *RJR* adopted a “clear statement” rule holding that a

statute cannot be applied extraterritorially unless Congress has clearly provided for such application in the language of the statute, *Meriel*—the sole purported basis for the district court’s decision—applied the exact opposite rule, holding that 35 U.S.C. § 271(b) can be applied extraterritorially merely because Congress did not “foreclose” such liability in the statute, which says nothing about extraterritorial application. And there can be no legitimate dispute in this case that CosMX’s liability for induced-infringement damages is based on extraterritorial actions it took abroad in China.

Third, the Court should reverse the judgment on CosMX’s antitrust counterclaim and remand for a new trial before a jury properly instructed on the correct burden of proof. The district court, without any stated reasoning, held that CosMX bore the burden of proving the “sham” exception to *Noerr-Pennington* by “clear and convincing” evidence, and that is the standard the jury employed to find against CosMX on that issue. That was reversible legal error. As two circuits have held—including the Fifth Circuit, whose law should govern the issue in this case—a party invoking the sham exception need only prove that issue by a preponderance of the evidence, which is the default rule for all civil issues. Congress already adequately protected First Amendment values in the substantive standard governing the sham exception, and there is no basis for doubling the plaintiff’s burden by imposing an additional, heightened evidentiary standard. Nor does

CosMX's claim implicate the higher burden imposed for invalidating U.S. patents. Nothing about CosMX's antitrust claim would lead to the invalidation of any patent, and, in any event, the patents whose sham assertion underlie that claim are Chinese, not U.S., patents. Finally, the error in imposing an improperly elevated burden of proof was not harmless, as the Court cannot find that a properly instructed jury applying the preponderance standard would necessarily have found against CosMX.

For these reasons, the Court should (1) reverse the judgment of induced infringement, (2) remand for entry of judgment solely on ATL's very minimal claim for direct infringement, and (3) reverse the judgment on CosMX's antitrust counterclaim and remand for trial before a properly instructed jury.

STANDARDS OF REVIEW

When reviewing damages in patent cases, this Court applies regional circuit law to procedural issues and Federal Circuit law to substantive and procedural issues pertaining to patent law. *Cyntec*, 84 F.4th at 987 (citation omitted).

The definitive denial of a pre-trial *Daubert* motion to exclude expert testimony is reviewable on appeal of a final judgment rendered after trial. *See* Fed. R. Evid. 103(b) ("Once the court rules definitively on the record—either before or at trial—a party need not renew an objection or offer of proof to preserve a claim of error for appeal."); *Micro Chem., Inc. v. Lextron, Inc.*, 317 F.3d 1387, 1391

(Fed. Cir. 2003) (applying Fifth Circuit law and citing Fed. R. Evid. 103(b) and *Mathis v. Exxon Corp.*, 302 F.3d 448, 459 (5th Cir. 2002)); *Kim v. Am. Honda Motor Co.*, 86 F.4th 150, 158 & n.2 (5th Cir. 2023); *see also United States v. Lucas*, 849 F.3d 638, 642 (5th Cir. 2017).

Federal Circuit law governs the permissibility under *Daubert* of a proposed method for determining patent-infringement damages. *Cyntec*, 84 F.4th at 987-88. The interpretation or meaning of this Court's precedential decision in *Cyntec* is a question of law and is therefore subject to de novo review. *YBM Magnex, Inc. v. Int'l Trade Comm'n*, 145 F.3d 1317, 1320 (Fed. Cir. 1998), *overruled on other grounds by Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co.*, 285 F.3d 1046 (Fed. Cir. 2002) (en banc).

The evidentiary standard for overcoming *Noerr-Pennington* immunity is another pure question of law. When such questions arise in the context of jury instructions, the Fifth Circuit reviews them de novo and will reverse unless any error was harmless. *See, e.g., GE Cap. Com., Inc. v. Worthington Nat'l Bank*, 754 F.3d 297, 302 (5th Cir. 2014).

ARGUMENT

I. THE COURT SHOULD REVERSE THE JUDGMENT FOR INDUCED INFRINGEMENT.

A. ATL Failed To Present Admissible Evidence Of Damages And Should Not Be Given A Second Bite At The Apple.

1. Ratliff's Methodology Is Inadmissible Under *Cyntec*, *Power Integrations*, and *Niazi*.

Patent infringement occurs only when a product is made, used, sold, offered for sale, or imported into the United States. 35 U.S.C. § 271(a). And because liability for induced infringement requires an underlying act of infringement, *id.* § 271(b), induced infringement damages cannot be awarded for products never imported into or sold in the United States. *See, e.g., Standard Havens Prods., Inc. v. Gencor Indus., Inc.*, 953 F.2d 1360, 1374 (Fed. Cir. 1991) (“infringement by the foreign customer has not been shown because there is no evidence of the [accused product’s] use in the United States”).

This bedrock principle—that infringement damages for products made abroad must be predicated only on U.S. sales—formed the background for the Court’s decision in *Cyntec*. There, the plaintiff alleged that the defendant manufactured infringing “chokes” (devices used in integrated circuits) that were purchased or acquired by 27 customers outside the United States, who then “placed them into devices that were then imported into the United States.” *Cyntec*, 84 F.4th at 983. To estimate the number of infringing products sold in the United

States, from which the ultimate amount of damages was calculated, the defendant's expert first used public SEC and annual reports to "determine[] each customer's importation rate by dividing the customer's U.S. revenue by its total worldwide revenue." *Id.* at 988-89. Then, by "multiplying [the defendant's] accused revenues made outside of the U.S. by the U.S. importation rates for each identified customer,' [the expert] estimated the 'infringement revenue subject to damages.'" *Id.* at 989 (cleaned up; citations omitted).

This Court held that the district court erred in admitting the expert's damages methodology because his importation calculations were "both unreliable and speculative" under *Daubert*. *Id.* at 990. Applying the Court's precedents in *Power Integrations* and *Niazi, supra*, the Court held that the publicly reported revenues used by the expert "included sales of irrelevant products and services, and he failed to account for these irrelevant products and services." *Id.* at 989. For example, the expert used total revenue for Apple as reported on its SEC 10-K forms, but that reported revenue "includes revenue received from services and products that do not even contain chokes," such as "advertising, warranty services, cloud services, digital content, and payment services" as well as unrelated products. *Id.* The expert's "use of the reported revenue did not differentiate between what products would or would not incorporate the accused chokes," which was "a mistake he repeated for other customers." *Id.* Nor were the expert's

importation calculations “save[d]” by the fact that he used corroborating third-party data, because that data applied to only six of the 27 customers. *Id.* at 990.

Here, Ratliff’s methodology for determining CosMX’s “infringement revenue subject to damages,” *Cyntec*, 84 F.4th at 989, is materially identical to the “unreliable and speculative” methodology *Cyntec* rejected as impermissible, *id.* at 990. Both cases involved allegations that the defendant manufactured infringing products abroad, that foreign companies incorporated those products into other devices abroad, and that end customers sold devices containing the infringing products throughout the world, including in the United States. In both cases, the plaintiff thus bore the burden to prove how many such products the end customers ultimately imported into and sold in the United States, because all other sales are non-infringing. Ratliff, like *Cyntec*’s expert, determined a crude importation rate by dividing the end customers’ global revenues from all sources—including products and services having nothing to do with the accused products—by their purported U.S. revenues from all sources, with both amounts taken from public SEC and annual reports. *See supra* at 7-12. Just as in *Cyntec*, these overall revenues “included sales of irrelevant products and services,” which Ratliff “failed to account for.” *Cyntec*, 84 F.4th at 989. As in *Cyntec*, the revenue taken from SEC and annual reports “includes revenue received from services and products that do not even contain” the accused battery cells, and Ratliff’s “use of the reported

revenue did not differentiate between what products would or would not incorporate the accused [battery cells].” *Id.*

In fact, Ratliff’s methodology was even *less* reliable, and *more* speculative, than Cyntec’s expert’s. First, some public reports Ratliff employed—including for Lenovo, a major battery purchaser—reported only revenues for the “Americas” rather than the United States, yet Ratliff nevertheless derived his U.S. importation rates by indulging the fiction that sales in Canada, Mexico, and Central and South America did not exist. *See supra* at 11. Thus, for these customers his calculations did not even purport to estimate revenues from infringing U.S. sales. Second, for other customers Ratliff did not even use customer-specific data at all; instead, he used an “average” U.S. sales rate derived from his faulty calculations as to other customers. *See id.* at 11-12. Third, unlike in *Cyntec*, Ratliff did not even attempt to corroborate his crude and vastly overinclusive importation rates derived from public reports with any other data.

Importantly, in holding that Ratliff’s methodology for determining the portion of CosMX’s revenues relating to sales in the United States was admissible, the district court did not find that it differed in any material way from the “unreliable and speculative” methodology employed by the *Cyntec* expert. To the contrary, the district court expressly acknowledged “the similarities between Mr.

Ratliff’s analysis and that of the expert in *Cyntec*,” Appx291, and stated that the *Cyntec* “facts are similar to these facts,” Appx134.

Instead, the court held that *Cyntec* was *per se* inapplicable to this case because *Cyntec* considered a lost-profits award whereas this case involves a reasonable royalty award. *See* Appx135. According to the court, “*Cyntec* is distinguishable from this case” because “[l]ost profits happen in the real world,” whereas a “reasonable royalty comes out of a hypothetical negotiation that never took place in the real world,” and these “are markedly and materially different constructs” that “avoid the preclusive effect *Cyntec* might otherwise have given.” Appx135; *see also* Appx291; Appx22859.

That holding is wrong as a matter of law. To begin with, *Cyntec* did not write on a blank slate but instead relied extensively and directly on two precedents of this Court—*Power Integrations* and *Niazi*—that both involved reasonable royalty theories. *See Cyntec*, 84 F.4th at 988; *Niazi*, 30 F.4th at 1358; *Power Integrations*, 711 F.3d at 1369. The Court held that *Cyntec*’s expert’s improper assumptions were “[l]ike the erroneous assumptions in *Power Integrations* and *Niazi*,” and that his testimony was “similar to the testimony . . . found improper in *Power Integrations*,” which meant that “[i]n the end,” the Court was “left with an expert opinion derived from unreliable data and built on speculation.” *Cyntec*, 84 F.4th at 990 (quoting *Power Integrations*, 711 F.3d at 1374).

That *Cyntec* was merely an application of prior reasonable-royalty precedents belies the district court's holding that *Cyntec*'s holding cannot apply when a reasonable royalty is at issue. And that point is further shown by the analysis in *Power Integrations* and *Niazi* that *Cyntec* adopted. In *Power Integrations*, the expert's analysis was deemed inadmissible because, *inter alia*, his damages base used worldwide shipments of mobile phones, but the accused products were found only in chargers and there was no evidence that every phone came with a charger, much less an infringing one. *Cyntec*, 84 F.4th at 988 (discussing *Power Integrations*, 711 F.3d at 1372-74). In other words, the analysis failed because, as in *Cyntec* and here, the expert's damages base did not only include revenues from infringing products. Moreover, *Power Integrations* involved awards for **both** a reasonable royalty and lost profits, *see* 711 F.3d at 1354-55, 1369, and the Court's disapproval of the expert's analysis applied to both awards, *id.* at 1372-74. In *Niazi*, the expert's reasonable-royalty analysis was similarly deemed inadmissible because he had "improperly 'included in his damages calculations'" sales of devices where it was "undisputed that ***not all of those sold devices had been used to practice the claimed method.***" *Cyntec*, 84 F.4th at 988 (discussing *Niazi*, 30 F.4th at 1357-58) (emphasis supplied in *Cyntec*). Even setting *Cyntec* aside, the district court never explained how Ratliff's model could satisfy the holdings of *Power Integrations* and *Niazi* themselves.

In any event, the reason the reasonable-royalty discussions in *Power Integrations* and *Niazi* dictated the result in *Cyntec* is the same reason that *Cyntec* dictates the result in this case. While there are obviously differences between how reasonable royalty and lost-profits damages are calculated, those differences are immaterial here. As a starting place, both types of damages require the plaintiff to prove, through reliable and non-speculative evidence, the same key underlying fact: the amount of infringing sales. In a lost-profits case, that amount becomes the base from which the lost profits are calculated. Thus, in *Cyntec*, the Court excluded the expert’s unreliable and speculative methodology for determining the defendant’s “infringement revenue subject to damages.” 84 F.4th at 989-90. In a reasonable-royalty case, that amount becomes the base to which the reasonable royalty is applied. Thus, *Power Integrations* and *Niazi* were merely applications of the well-settled rule that “[t]he royalty base for reasonable royalty damages cannot include activities that do not constitute patent infringement.” *AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1343 (Fed. Cir. 2015). In short, the invalid *Cyntec* methodology was used for the identical purpose as Ratliff’s here: to derive the defendant’s revenue attributable to infringing U.S. sales as distinguished from non-infringing foreign sales.

It defies the rule of law to hold—as the district court did here—that an “unreliable and speculative” methodology for calculating the amount of infringing

sales in one case becomes reliable and nonspeculative when that same methodology is used to calculate the same variable in another case. Thus, in *Sunoco Partners Marketing & Terminals L.P. v. U.S. Venture, Inc.*, 32 F.4th 1161 (Fed. Cir. 2022), this Court upheld a decision that “rejected [a plaintiff’s] reasonable-royalty analysis because it ‘suffer[ed] from the same flaw as [the plaintiff’s] lost profits analysis’ by relying on evidence that ‘cover[ed] services beyond simply the value of the patents.’” *Id.* at 1180-81 (citation omitted). The same is true here. Ratliff’s methodology “suffered from the same flaw as [the *Cyntec* expert’s] lost profits analysis” by relying on evidence unrelated to the patent at issue. *Id.* Put another way, a “reasonable” royalty cannot be calculated based on a methodology that is itself unreasonable under *Daubert*. *See, e.g., Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1296 (Fed. Cir. 2015) (citing *Daubert* for proposition that damages methodology is inadmissible when it is “plagued by logical deficiencies or is otherwise unreasonable”).

Yet even though *Cyntec* was merely a straightforward application of prior reasonable-royalty cases, the district court deemed *Cyntec* inapplicable to all such cases on the theory that “[l]ost profits happen in the real world,” whereas a “reasonable royalty comes out of a hypothetical negotiation that never took place in the real world,” making these two forms of damages “markedly and materially different constructs.” Appx135. As explained, that assertion is ultimately

irrelevant, because even if *Cyntec* were distinguishable, *Power Integrations* and *Niazi*—both reasonable-royalty cases—would dictate the same result. But in any event, and as *Sunoco Partners* demonstrates, the district court’s analysis is wrong. While it is true that a reasonable royalty calculation involves a “hypothetical negotiation,” *id.*, that hypothetical negotiation is used to derive the royalty *rate*—which is not at issue in this appeal. That rate is then multiplied by a different number—the royalty *base*—which in this case is a “real world” amount that reflects the actual total sales of infringing products in the United States.³ Thus, none of the “*Georgia-Pacific*” factors, which are typically used to ascertain the results of this hypothetical negotiation, pertains specifically to the royalty base rather than the rate.⁴ And even where an expert opines that parties would have “agreed” to pay royalties on a “royalty base comprising sales of non-accused

³ See, e.g., *AstraZeneca*, 782 F.3d at 1338, 1333-34 (discussing standards for determining “the royalty rate that would have emerged from the hypothetical negotiation” and separately discussing royalty base); *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 27 (Fed. Cir. 2012) (“When a hypothetical negotiation would have yielded a running royalty, the classic way to determine the reasonable royalty amount is to multiply the royalty base, which represents the revenue generated by the infringement, by the royalty rate, which represents the percentage of revenue owed to the patentee.”); Appx87863 (calculation in this case).

⁴ See *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970); *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1317 (Fed. Cir. 2011) (“This court has sanctioned the use of the *Georgia-Pacific* factors to frame the reasonable royalty inquiry.”); Appx87853 (Ratliff’s listing of *Georgia-Pacific* factors).

[products],” such testimony cannot support a damages award because “[r]egardless of the characterization by [the] expert, damages calculated by applying a royalty to sales of non-accused [products] cannot support a jury’s verdict on damages.”

Enplas Display Device Corp. v. Seoul Semiconductor Co., 909 F.3d 398, 412 (Fed. Cir. 2018). The notion that incanting the phrase “reasonable royalty” opens the door to speculative, unreliable evidence is directly refuted by *Power Integrations* and *Niazi* themselves.

Moreover, even if it were permissible (and it is not) to try to prove what royalty base would have been negotiated as opposed to proving actual infringing sales, ATL offered no such evidence. Instead, Ratliff used his own methodology, purportedly based on “real world” numbers, to determine actual U.S. sales and revenues. Neither Ratliff’s report nor his testimony contains any opinion about how the parties would have negotiated how to calculate a royalty base, or what methodology they might have used in such a negotiation. *See* Appx24248-24312; Appx87851-87862. Rather, as explained above, Ratliff’s calculation of the royalty base—purported U.S. sales of devices containing accused products—was derived from the same facile methodology that this Court invalidated in *Cyntec*, which used public reports. None of his testimony on *that* issue referenced or had anything to do with a hypothetical negotiation. *See* Appx24284-24291.

Finally, the district court wrongly held that ATL's claimed inability to obtain actual evidence of U.S. sales supported the admissibility of a methodology this Court has already rejected. *Cf.* Appx135. The lack of potentially relevant evidence results from ATL's own choices. It was ATL that elected to bring indirect, induced-infringement claims against CosMX rather than direct-infringement claims against the actual end customers. Induced infringement is necessarily more difficult to prove than direct infringement, because it requires both proof of direct infringement and proof that the defendant knowingly induced the direct infringement and possessed specific intent to encourage it. *See, e.g., Exergen Corp. v. Wal-Mart Stores, Inc.*, 575 F.3d 1312, 1320 (Fed. Cir. 2009).

Moreover, having made that choice—and thus ensured that comprehensive third-party discovery would be necessary to prove a critical element of its claims—ATL failed to rigorously pursue that third-party discovery. It served third-party subpoenas, but took no third-party depositions, obtained minimal documents, and filed no motions to compel. It could have asked for information about U.S. sales and revenues of relevant products, what percentage of such products contain CosMX batteries, and other relevant data. Instead, it gave up on trying to obtain *any* information after the slightest pushback from third-party counsel, Appx18033, possibly for the strategic purpose of not antagonizing companies that were also its own customers. In *Cyntec*, the Court noted that the plaintiff failed to conduct

“third-party discovery or testing” to determine whether the end customers’ products used to calculate damages were actually infringing. 84 F.4th at 990. So too here: ATL’s failure to carry its burden was attributable largely to its own choices, and that failure cannot justify the admission of a damages model this Court has already held is inadmissible.

Just because “damages or the right to such damages may be difficult to prove does not excuse that responsibility.” *Grace-Cajun Oil Co. No. Two v. Damson Oil Corp.*, 897 F.2d 1364, 1367 (5th Cir. 1990). ATL bore the burden of proving the amount of infringing U.S. sales, and its inability to prove that fact cannot justify use of a methodology that this Court has already held is “both unreliable and speculative.” *Cyntec*, 84 F.4th at 990.

2. The Court Should Reverse The Judgment Of Induced Infringement And Remand For Entry of Judgment Solely On ATL’s Direct-Infringement Claim.

As shown above, ATL wholly failed its burden to prove its claim for induced infringement because it relied on a methodology for estimating the number of allegedly infringing U.S. sales that this Court in *Cyntec*—which issued well before the trial of this case and which CosMX raised in its *Daubert* motion—held unreliable and speculative and therefore inadmissible. Accordingly, ATL had no legally sufficient evidence supporting its induced-infringement claims. As Ratliff himself admitted, he could not identify even a single actual product in the United

States that could support an induced-infringement claim. *See* Appx24297. Nor should ATL, which had ample notice of *Cyntec*’s holding (to say nothing of *Power Integrations*’ and *Niazi*’s), be given another chance to prove those claims.

This Court’s precedents confirm the point. In *Promega Corp. v. Life Technologies Corp.*, 875 F.3d 651 (Fed. Cir. 2017), the plaintiff chose to try to prove damages based on worldwide—rather than just U.S.—sales of accused products, a choice this Court characterized as a “deliberate strategy to adhere to a single damages theory” that “had the effect of winnowing out from the case any argument about damages based on a figure other than worldwide sales.” *Id.* at 662. Upon holding that there was insufficient evidence to support damages, the Court further held that the plaintiff had waived any argument regarding an alternative measure of damages and was therefore not entitled to a new trial. *Id.* at 660-63, 664-66. As the Court explained, “litigation is a ‘winnowing process,’ and the procedures for preserving or waiving issues are part of the machinery by which courts narrow what remains to be decided.” *Id.* at 662 (quoting *Exxon Shipping Co. v. Baker*, 554 U.S. 471, 487 n.6 (2008)). Thus, the denial of a new trial was proper because the “plaintiff deliberately [took] a risk by relying at trial exclusively on a damages theory that ultimately prove[d] unsuccessful,” while “fail[ing] to present an alternative case for damages.” *Id.* at 666. Likewise, in *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1291-92 (Fed. Cir. 2020), the Court

relied on *Promega* to hold that a jury’s award of damages was properly nullified—without affording a new trial on that issue—because the “damages award was not supported.” *Id.* at 1291-92 (affirming decision in *TecSec, Inc. v. Adobe Inc.*, 2019 WL 13119397, at *4 (E.D. Va. June 18, 2019), to deny new trial).

The same circumstances that led to reversal without a new trial in those cases are equally present here, if not more so. *Cyntec* issued months before the trial of this case, and ATL was well aware of it. Yet ATL made the deliberate decision to adhere to Ratliff’s methodology—a methodology materially identical to (and in additional ways worse than) the one this Court had just excluded in *Cyntec*—without ever attempting to offer an alternative methodology to measure damages in the event Ratliff’s methodology failed. ATL openly admitted that Ratliff’s methodology was its “entire damages case.” Appx18028.

Thus, as in *Promega* and *TecSec*, ATL affirmatively waived any attempt to offer an alternative damages model for its induced-infringement claims.⁵ Any

⁵ *Promega* and *TecSec* involved trial court decisions denying new trials, but that is no distinction. This Court gave no indication that it would have or could have been proper to permit a new trial in either case. And the mere fact that the district court here misapplied *Cyntec* and permitted Ratliff to testify does not warrant treating this case differently, because here, just as in *Promega* and *TecSec*, ATL chose to rely solely on a single, flawed damages model. ATL must live with the result of that choice.

remand for further proceedings on those claims would be useless and improper given ATL's repeated confirmation that it possesses no other evidence it believes could prove the amount of any infringing third-party sales. *See* Appx18014-18015 (arguing, in opposition to CosMX's *Daubert* motion, that Ratliff purportedly used "the only available data source" and that his methodology was proper because of "the unavailability of data showing directly how many of CosMX [cells] actually end up in the U.S.")). Discovery closed long ago. ATL could have sought to reopen it in light of *Cyntec*, but failed to do so.

Accordingly, the Court should reverse the entire judgment on ATL's induced-infringement claims (including the corresponding awards of supplemental damages, prejudgment interest, and enhanced damages), and remand solely for entry of judgment on ATL's minimal claim for direct infringement. As noted above, *see supra* at 12-13 & n.2, ATL proved only \$1,341 in damages on its direct-infringement claim relating to the '987 patent, including supplemental damages and prejudgment interest. And the district court's award of \$1,000,000 in enhanced damages, which was predicated on the jury's adoption of the \$3,701,108 in damages produced by Ratliff's model, is untenable in light of the incurable defects of that model. Accordingly, if on remand ATL were to pursue enhanced damages on the paltry \$1,341 in direct-infringement damages, the enhanced damages analysis would necessarily change, and any such award would be limited

to at most three times that amount. *See* 35 U.S.C. § 284. Likewise, if on remand ATL were to pursue a running royalty on any future direct U.S. sales by CosMX, the appropriate royalty base would be limited to evidence relevant to those sales, rather than Ratliff’s faulty model that was used for the running royalty that the district court awarded. *Cf.* Appx30883 (reserving CosMX’s right to challenge running royalty on remand based on any decision in this appeal).

B. In The Alternative, Predicating An Induced-Infringement Claim On A Defendant’s Actions Abroad Is An Impermissibly Extraterritorial Application Of U.S. Patent Law.

In the alternative, the Court should reach the same result by holding that ATL’s indirect-infringement claim fails as a matter of law because all actions that allegedly constituted CosMX’s “inducement” took place abroad—in China—and basing CosMX’s infringement liability on such foreign actions would be an impermissible extraterritorial application of U.S. patent laws. The district court rejected this argument based on its stated view that this Court’s 2012 holding in *Merial, supra*, remains good law. Appx556.

In *Merial*, a panel of this Court held that “extraterritorial acts that actively induce an act of direct infringement that occurs within the United States” can support liability for induced infringement under 35 U.S.C. § 271(b). 681 F.3d at 1302. But *Merial*’s holding is no longer valid in light of the Supreme Court’s intervening decision in *RJR Nabisco, Inc. v. European Community, supra*, which

confirmed that a U.S. statute is presumed not to reach extraterritorial conduct unless “the statute gives a clear, affirmative indication that it applies extraterritorially.” 579 U.S. at 337. Since *Merial*’s holding is contrary to *RJR*’s presumption against extraterritorial application, that holding should no longer apply. See, e.g., *Troy v. Samson Mfg. Corp.*, 758 F.3d 1322, 1326 (Fed. Cir. 2014) (holding that circuit precedent ceases to be good law when subsequent Supreme Court authority “undercut[s] the theory or reasoning underlying” it) (citation omitted); Stier, 19 UIC Rev. Intell. Prop. L. at 217 (*Merial* “should no longer be followed as it has been overruled by implication” by subsequent Supreme Court authority applying *RJR* to patent laws) (cited by CosMX at Appx30206).⁶

Induced-infringement liability is predicated on 35 U.S.C. § 271(b), which provides that “[w]hoever actively induces infringement of a patent shall be liable as an infringer.” This language plainly contains no “clear, affirmative indication that it applies extraterritorially.” *RJR*, 579 U.S. at 337. The statute therefore cannot prescribe liability based on a defendant’s actions taken abroad. In holding otherwise, *Merial* flipped the presumption against extraterritoriality on its head in a manner *RJR* would later make clear was erroneous. Noting that 35 U.S.C.

⁶ After *RJR*, another panel of this Court reiterated *Merial*’s holding in *Enplas*, 909 F.3d at 408. But *Enplas* did not address any contention that *Merial* was no longer good law following *RJR*; indeed, neither party raised the question in the appeal. Accordingly, that question remains open.

§ 271(a), which governs liability for direct infringement, is expressly limited to actions taken in the United States, the *Merial* panel held that because Section 271(b), “does not, on its face, foreclose liability for extraterritorial acts that actively induce an act of direct infringement,” it should not be “read ... as being so limited.” 681 F.3d at 1302. That is the direct antithesis of the “clear statement” rule required by *RJR*. Under *RJR*, the presumption against extraterritoriality applies unless Congress **expressly** provides for extraterritorial application. To treat as dispositive the fact that Section 271(b) does not “foreclose liability for extraterritorial acts,” *id.*, is the exact opposite of requiring a “clear, affirmative indication” that it **does** “appl[y] extraterritorially.” *RJR*, 579 U.S. at 337. Accordingly, under *RJR*, Section 271(b) cannot apply extraterritorially, and *Merial* is wrong. *See* Stier, 19 UIC Rev. Intell. Prop. L. at 214 (“After *Merial* was decided, the Supreme Court changed the nature of the inquiry: the default situation is to **exclude** an extraterritorial application **unless** the statute **affirmatively** states otherwise.”) (emphasis in original).

Turning to the second step of the *RJR* analysis, which examines whether the case at issue “involves a permissible domestic application” of the pertinent statute, *RJR*, 579 U.S. at 337, there is no legitimate dispute that CosMX’s liability in this case is impermissibly extraterritorial because it was based on actions CosMX took abroad—namely, in China. Section 271(b) liability is based on a defendant’s

conduct that “actively induces infringement.” 35 U.S.C. § 271(b). *See, e.g., ePlus, Inc. v. Lawson Software, Inc.*, 789 F.3d 1349, 1360 (Fed. Cir. 2015) (“[I]nduced infringement requires active steps to encourage direct infringement[.]”). For that conduct to amount to a domestic application of the statute, it cannot occur entirely overseas, as the conduct at issue here did. *RJR*, 579 U.S. at 337 (holding that because all the relevant conduct regarding the violations of the statute “took place outside the United States,” the conduct was an extraterritorial application of the statute at issue) (citation omitted); *cf. WesternGeco LLC v. ION Geophysical Corp.*, 585 U.S. 407, 415 (2018) (holding that 35 U.S.C. § 271(f)(2), involving contributory infringement, did not constitute an extraterritorial application of U.S. law because its liability was based on the “domestic act of supplying the components that infringed [the defendant’s] patents”). *All* the actions the district court cited as constituting CosMX’s alleged “inducement”—CosMX’s communications with some end customers, its tailoring of products to meet their demands, and its certification of products for the U.S. market (among many others), *see* Appx555 (citing Appx30654, Appx24343; Appx24324), took place in China. Thus, the judgment would hold CosMX liable for induced infringement based entirely on its actions abroad, not any actions it took in the United States.

That is impermissible extraterritorial liability. To determine whether a statute is being applied extraterritorially, the Court must identify “the statute’s

‘focus.’” *RJR*, 579 U.S. at 337. That, in turn, requires identifying “the acts that give rise to liability.” *Syngenta Crop Prot., LLC v. Willowood, LLC*, 944 F.3d 1344, 1359-60 (Fed. Cir. 2019). If those acts “occurred in another country, ‘then the case involves an impermissible extraterritorial application regardless of any other conduct that occurred in U.S. territory.’” *WesternGeco*, 585 U.S. at 414. Thus, in *Syngenta*, this Court considered an attempted extraterritorial application of 35 U.S.C. § 271(g), which imposes infringement liability on anyone who “imports into the United States or offers to sell, sells, or uses within the United States a product which is made by a process patented in the United States.” The Court held that it would be an impermissible extraterritorial application of the statute to impose liability for the act of “practicing the patented process abroad,” because “the acts that give rise to liability” under the statute are the importation, offer for sale, sale, or use of the product in the United States. 944 F.3d at 1359-60 (emphasis omitted). *Cf. Brumfield*, 97 F.4th at 871 (affirming exclusion of foreign sales from damages due to domestic infringement).

Under Section 271(b), the only “acts that give rise to liability” are the defendant’s actions that “induce[],” 35 U.S.C. § 271(b), a third party to commit an act of infringement in the United States. The third-party direct infringer’s actions are immaterial to the extraterritoriality inquiry because the inducement defendant is being held liable for *its own* actions in inducing the third-party conduct, not

third-party direct infringement committed domestically. Because the statute contains no clear statement overcoming the presumption against extraterritoriality, those liability-creating acts cannot occur entirely outside the United States. And because CosMX’s liability for induced infringement in this case was based on actions it took abroad, the statute cannot penalize those actions under *RJR*. This issue provides another, alternative reason why the Court should reverse the judgment of induced infringement and remand solely for entry of judgment on ATL’s minimal claim for direct infringement.

II. THE DISTRICT COURT ERRED AS A MATTER OF LAW IN IMPOSING A “CLEAR AND CONVINCING” STANDARD FOR *NOERR-PENNINGTON*’S SHAM EXCEPTION.

The Supreme Court has made clear that “the default rule for civil cases” is the “preponderance of the evidence” standard. *CIGNA Corp. v. Amara*, 563 U.S. 421, 444 (2011); *Herman & MacLean v. Huddleston*, 459 U.S. 375, 387 (1983) (“In a typical civil suit for money damages, plaintiffs must prove their case by a preponderance of the evidence.”). Applying that longstanding dictate, two federal courts of appeals—including the Fifth Circuit, whose law governs this issue—have correctly rejected the contention that a plaintiff seeking to establish the sham exception to *Noerr-Pennington* antitrust immunity faces a heightened evidentiary standard. In *Litton*, the Second Circuit explained that there is “no reason to impose any higher burden of proof on the antitrust plaintiff asserting sham than would

ordinarily be applicable in any civil issue.” 700 F.2d at 813-14. And in *Mid-Texas*, 615 F.2d at 1384 n.10, the Fifth Circuit specifically approved a jury instruction stating that a party invoking the sham exception need establish it only by a preponderance, stating that “we believe that in substance [the] requested specific instruction was proper.” The district court erred as a matter of law in holding CosMX to a higher burden of proof.

A. The Jury Instruction Is Contrary To Fifth Circuit Precedent, Which Governs The Burden Of Proof On CosMX’s Antitrust Claim.

This Court has held that, as a general matter, “when reviewing a district court’s judgment involving federal antitrust law, [it is] guided by the law of the regional circuit in which that district court sits.” *Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 1067 (Fed. Cir. 1998) (en banc); *see also Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 875 (Fed. Cir. 1985) (“We must approach a federal antitrust claim as would a court of appeals in the circuit of the district court whose judgment we review.”); *Atari, Inc. v. JS & A Group, Inc.*, 747 F.2d 1422, 1438-40 (Fed. Cir. 1984) (en banc); *Cygnus Therapeutics Sys. v. ALZA Corp.*, 92 F.3d 1153, 1161 (Fed. Cir. 1996). That choice-of-law rule makes the district court’s error plain. The question involves the burden of proof on an issue specific to federal antitrust law—the “sham” exception to *Noerr-Pennington* immunity in a case involving the attempted enforcement of foreign patents. And as already

noted, the Fifth Circuit resolved the issue in *Mid-Texas*, 615 F.2d at 1384 n.10, by upholding jury instructions providing that a party invoking the sham exception need establish it only by a preponderance.

Nobelpharma does not require a different result. There, applying the principle that issues “involv[ing] [this Court’s] exclusive jurisdiction over patent cases” are governed by Federal Circuit law, the Court held that “whether conduct in procuring or enforcing a patent is sufficient to strip a patentee of its immunity from the antitrust laws” is generally such an issue. *Nobelpharma*, 141 F.3d at 1067, 1068. But unlike in *Nobelpharma*, the patents whose sham enforcement is at issue here are *foreign*, Chinese patents. *See supra* at 6. Accordingly, nothing about CosMX’s antitrust case, including its invocation of the sham exception, implicates any patent issue that is “subject to [this Court’s] exclusive jurisdiction over patent cases.” *Nobelpharma*, 141 F.3d at 1068. That exclusive jurisdiction extends only to cases where a party has asserted a claim or counterclaim arising under “*any Act of Congress* relating to patents.” 28 U.S.C. § 1295(a)(1) (emphasis added). ATL’s affirmative U.S. patent claims (and the proper measure of damages for them) implicate that exclusive jurisdiction and confer jurisdiction on this Court. But CosMX’s antitrust counterclaim, ATL’s invocation of the *Noerr-Pennington* exception, and CosMX’s burden of proof on the sham exception all have nothing whatsoever to do with any patent issued pursuant to an Act of Congress. Instead,

the issues pertain only to foreign patents and therefore do not implicate this Court's exclusive patent jurisdiction in any way.

Accordingly, just like all other aspects of CosMX's antitrust claim, CosMX's burden of proving ATL's sham assertion of its foreign Chinese patents is governed by regional circuit law, not Federal Circuit law. And because the appropriate regional circuit—the Fifth—has already approved of applying the ordinary preponderance-of-the-evidence burden to antitrust claims asserting the sham exception, *Mid-Texas*, 615 F.2d at 1384 n.10, the district court erred as a matter of law in subjecting CosMX's claims to a higher burden.

B. Regardless Of What Circuit's Law Applies, The District Court Erred In Imposing A Clear And Convincing Burden On CosMX's Antitrust Claim.

In all events, this Court should reach the same result as the Fifth and Second Circuits and hold that CosMX's antitrust claim, including its invocation of the sham exception, is subject to the ordinary preponderance-of-the-evidence burden. As noted, that is the default rule in all civil cases. And while the Supreme Court has occasionally imposed a clear-and-convincing standard in other contexts “to protect particularly important individual interests,” *Addington v. Texas*, 441 U.S. 418, 424 (1979), there is no basis to do so here. In the context of *Noerr-Pennington* and its sham exception, the Supreme Court has protected those interests in a different way, by incorporating in the sham exception not only a

requirement of improper motivation, but also a separate and “indispensable objective component,” which requires the plaintiff to demonstrate “that no reasonable litigant could [have] realistically expect[ed] success on the merits” of the challenged petitioning. *PRE*, 508 U.S. at 58, 60. Given that protection, and as *Litton* makes clear, there is no basis for doubling the plaintiff’s burden by imposing an additional, heightened evidentiary standard: “If an objective litigant could conclude that [a challenged] suit is reasonably calculated to elicit a favorable outcome,” it is already, by definition, not a sham. *Id.* at 60. By requiring both objective and subjective baselessness, “the Supreme Court has already struck a rough balance between the competing First Amendment and antitrust interests.” *Litton*, 700 F.2d at 813. There is no reason to further tilt the scale.

This Court’s 1985 decision in *Loctite*, *supra*, is not to the contrary. There, conducting an inquiry into what it believed Seventh Circuit law would hold, the Court affirmed a Wisconsin district court’s determination that showing “bad faith” under *Noerr-Pennington* required clear and convincing evidence. 781 F.2d at 876-77. But that case was decided under Seventh Circuit law, before the Court overruled its prior choice-of-law rule in *Nobelpharma*, 141 F.3d at 1068, and held that questions of antitrust immunity relating to the procurement and enforcement of U.S. patents (at issue in *Loctite* but not here) are governed by Federal Circuit law. Accordingly, *Loctite* is at most a prediction as to how the Seventh Circuit might

have decided the issue in 1985, not a binding statement of current Federal Circuit law to the extent that law even governs here.

Moreover, and in any event, the Supreme Court's subsequent decision in *PRE*, which was issued eight years after *Loctite*, undermines *Loctite*'s entire foundation. Thus, even if *Loctite* represented this Court's law when it was issued, it would be superseded by that intervening Supreme Court precedent and thus no longer good law. *See Troy*, 758 F.3d at 1326. Specifically, the Seventh Circuit sham test that *Loctite* applied erroneously failed to incorporate the objective baselessness prong *PRE* would later deem "indispensable." *See Loctite*, 781 F.2d at 876. Without that objective component as a safeguard, *Loctite* deemed the sham test insufficiently petitioning-protective, and therefore embraced the heightened evidentiary standard as a possible "solution" to "[t]he problem" of "provid[ing] the means whereby the bad faith infringement action can be identified post hoc with a sufficiently high degree of certainty to make it highly improbable that the action in fact was brought in good faith." *Id.* *Loctite*'s "primary, if not sole" animating concern "was the public policy of erecting a barrier against thwarting patentees from asserting legitimate patent rights." *Id.* at 877 (asserting that the preponderance standard would "eliminate a barrier we hold necessary, and were it accepted as proper might well chill legitimate patent enforcement efforts")

(quoting *Handgards, Inc. v. Ethicon, Inc.*, 601 F.2d 986, 996 (9th Cir. 1979))

(internal quotation marks omitted).

After *PRE*, that is no longer a concern. As *PRE* made clear, litigation cannot be sham unless, at its outset, no reasonable litigant would have believed it even had ***the potential*** to be successful. *PRE*, 508 U.S. at 60. Because it was decided before *PRE*, *Loctite* thus applied a watered-down substantive test that did not include that element, while seeking to bolster that watered-down test with a heightened evidentiary standard. But *PRE* later invalidated that watered-down standard and replaced it with an appropriate one that accounts for the First Amendment interests with which *Loctite* was concerned. Thus, *Loctite* has nothing to say about what evidentiary standard should apply after *PRE*.⁷ In the years since *Loctite*, the Supreme Court has more than once reversed this Court for too easily departing from the default, preponderance standard. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 579 U.S. 93, 107 (2016) (invalidating test that “require[d] clear and convincing evidence to prove recklessness”); *Octane*, 572 U.S. at 557-58 (“Finally, we reject

⁷ This Court’s subsequent, offhand references to the clear-and-convincing standard are not binding here. *See, e.g., Mitek Surgical Prods., Inc. v. Arthrex, Inc.*, 2000 WL 217637, at *4 (Fed. Cir. Feb. 22, 2000) (unpublished); *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1368-69 (Fed. Cir. 1998) (noting in a parenthetical that *Handgards* “require[ed] clear and convincing evidence of bad faith” under Ninth Circuit law); *Mirafi, Inc. v. Murphy*, 1991 WL 10623, at *2-3 (Fed. Cir. Feb. 4, 1991) (pre-*PRE*, unpublished decision).

the Federal Circuit’s requirement that patent litigants establish their entitlement to fees under § 285 by ‘clear and convincing evidence.’”). The Court should not make that mistake yet again.

There is also no basis to conclude, as *Loctite* and *Handgards* did, that the clear-and-convincing standard should apply in the *Noerr-Pennington* context merely because it applies in the “*Walker Process*” context. *Walker Process* pertains to “fraudulent procurement of a patent as a basis for an antitrust claim,” *Loctite*, 781 F.2d at 876, and thus necessarily results in patent invalidity. And invalidity must always be proved by clear and convincing evidence, at least where U.S. patents are concerned. *See Microsoft Corp. v. I4I Ltd. P’ship*, 564 U.S. 91, 95 (2011). But the patents at issue in the antitrust claim are not U.S. patents nor is there any evidence that Chinese law applies the same burden to prove invalidity as U.S. law. In any event, a finding that an infringement claim was sham does not, as a matter of law or logic, invalidate the patent itself. *See, e.g.*, Appx25274 (testifying not that patents ATL asserted were invalid, but that it was objectively unreasonable to assert they were infringed). *Loctite*’s analogy to *Walker Process* thus fails. Ultimately, the presumption of validity may make it difficult to prove objective baselessness in a suit asserting U.S. patents. But the fact that it may sometimes be hard to prove that a U.S. patent suit was objectively baseless under *PRE* reinforces, rather than undermines, the critical point the district court missed,

which is that *PRE* does not require the assistance of a heightened evidentiary standard to adequately protect potentially meritorious petitioning.

C. The Error Was Not Harmless.

The district court's erroneous application of the clear-and-convincing standard was demonstrably prejudicial.⁸ Indeed, the district court itself denied ATL's Rule 50 motion with respect to *Noerr-Pennington*, demonstrating the court's own view that a reasonable jury could have sided with CosMX no matter the evidentiary standard. Appx25574-25575; Appx25605-25609; Appx25618-25619. And CosMX certainly could have satisfied the preponderance standard, because it presented direct evidence both that the threatened suits would have been an abuse of the Chinese patent system (*i.e.*, objectively meritless) and that ATL's

⁸ See, e.g., *Jowers v. Lincoln Elec. Co.*, 617 F.3d 346, 360 (5th Cir. 2010) (where properly instructed jury "could have" found in appellant's favor, instructional error is "not harmless"); *Gardner v. Wilkinson*, 643 F.2d 1135, 1137 (5th Cir. Unit A Apr. 1981) (where district court erroneously applied a clear-and-convincing standard to disputed evidence, error was not harmless because "we cannot say that the jury's result would not have been different had it been properly instructed"); see also *Price v. Symsek*, 988 F.2d 1187, 1194 (Fed. Cir. 1993) (imposing too high burden of proof "was legal error," and because "the erroneous burden of proof . . . worked against [the defendant's] interest, *i.e.*, it was more difficult to overcome than the proper burden of proof," the "situation c[ould not] ordinarily be classified as 'harmless'").

threat was specifically timed to interfere with CosMX's IPO (thus satisfying the sham exception's subjective prong). *See supra* at 17-18. ATL thus cannot demonstrate that it would necessarily have been entitled to a directed verdict if the correct burden had been applied. Reversal is therefore required.

CONCLUSION

For the foregoing reasons, the judgment should be reversed to the extent it awards damages and an ongoing royalty arising from indirect infringement. The case should be remanded with instructions to award ATL damages solely for direct infringement, in the amount of \$1,341, and a corresponding running royalty likewise corresponding solely to any directly infringing U.S. sales by CosMX. With respect to CosMX's antitrust claim, the judgment should be vacated and the case remanded for retrial before a properly instructed jury.

Respectfully submitted,

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January 8, 2025

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ADDENDUM OF ORDERS AND JUDGMENTS

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NINGDE AMPEREX TECHNOLOGY,) CAUSE NO. 2:22-CV-232-JRG
LIMITED, ()
Plaintiff, ()
vs. ()
ZHUHAI COSMX BATTERY CO., LTD., (MARSHALL, TEXAS
Defendant.) JANUARY 17, 2024
9:30 A.M.

PRETRIAL CONFERENCE

BEFORE THE HONORABLE RODNEY GILSTRAP
UNITED STATES CHIEF DISTRICT JUDGE

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1 It's the -- respectfully, I think it's the exact same
2 thing Mr. Ratliff did. I don't think they can distinguish it.

3 Thank you for your patience, Your Honor.

4 MR. POWELL: Your Honor, I'd just like to correct
5 and read for completeness the other part of the opinion he's
6 overlooking.

7 THE COURT: I'm familiar with the opinion. I don't
8 need you to read the rest of it.

9 MR. POWELL: It is -- thank you, Your Honor.

10 THE COURT: All right. With regard to Document 201
11 and Defendant's motion to strike the report of Alan Ratliff,
12 the Plaintiff's damages expert, the Court's aware of when the
13 Cyntec case came out. I'm familiar with the case and the
14 rationale analysis therein.

15 I am persuaded that the facts there and here are
16 distinguishable, primarily because *Cyntec* was based or dealt
17 with a lost profits calculation, this case deals with a
18 reasonable royalty calculation, and that's a significant
19 difference, in the Court's view. By its very nature, a lost
20 profits calculation requires a higher degree of precision than
21 a reasonable royalty calculation would.

22 Despite the argument today of what could have been done
23 and should have been done, nobody has shown any real evidence
24 that, in fact, these alternative steps were practical and
25 reasonable and could have been taken. CosMX doesn't come back

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1 with any information it developed along these same lines to
2 put a finer point on what it alleges is the non-reliability or
3 unreliability of Mr. Ratliff's opinions.

4 I understand the argument from *Cyntec* and I understand
5 the argument about importation rates containing sales of
6 products that don't include the chokes. Those facts are
7 similar to these facts. But that all goes to calculating a
8 reliable royalty in a lost profits case, and that's a
9 different proposition than a reasonable royalty.

10 And I am not persuaded that Plaintiff could have gone to
11 the excessive lengths that Defendants proffer to have gotten
12 the information that they complain about being missing. These
13 are not products that are sold to two or three parties; these
14 are globally ubiquitous, and the number of products, the
15 number of parties, the number of middlemen, the number of
16 participants in the supply chain are just myriad. And to say,
17 Oh, you know, we could have or they should have -- Plaintiff
18 should have gone to -- Mr. Ratliff should have gone to [REDACTED]
19 [REDACTED] and on and on and on, as
20 all of us involved in these lawsuits know, going to one of
21 these companies is not like knocking on the door and talking
22 to somebody and getting a quick answer; it is a Herculean
23 undertaking as suggested by Defendants in their motion. And
24 again, were this a lost profits case, I would feel differently
25 about it.

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1 The Court's also aware of the fact that motions to strike
2 and *Daubert* motions are a -- they call for a severe remedy.
3 They call for absolute exclusion and preclusion from the
4 factfinder of certain opinions and testimony, and they should
5 be reserved for the most clear cases of flawed analysis or
6 incomplete or failed presentation.

7 The Court trusts the jury to see both sides of the
8 arguments, and it does not require there to be perfection or
9 anything even close to perfection to survive being absolutely
10 excluded and precluded.

11 I find that *Cyntec* is distinguishable from this case,
12 primarily on the basis that that case seeks a lost profits
13 calculation, and this is a reasonable royalty calculation
14 within a hypothetical negotiation. Lost profits happen in the
15 real world; reasonable royalty comes out of a hypothetical
16 negotiation that never took place in the real world. These
17 are completely different constructs. Well, they are markedly
18 and materially different constructs, and I think that's an
19 adequate distinction that would avoid the preclusive effect
20 *Cyntec* might otherwise have given what we have before us.

21 I'm going to deny the motion.

22 All right, counsel. It's 10 minutes until 1:00. We're
23 going to take a second recess. We'll make this about 10 or 15
24 minutes, and then we'll be back on the record. Next we'll
25 turn to the motion to strike certain portions of ATL's expert

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NINGDE AMPEREX TECHNOLOGY
LIMITED,

Plaintiff,

v.

ZHUHAI COSMX BATTERY CO., LTD.,

Defendant.

§
§
§
§
§
§
§
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§

CIVIL ACTION NO. 2:22-CV-00232-JRG

FILED UNDER SEAL

ORDER ON PRETRIAL MOTIONS AND MOTIONS *IN LIMINE*

The Court held a Pretrial Conference in the above-captioned matter on Wednesday, January 17, 2024 regarding pending pretrial motions and motions *in limine* (“MILs”) filed by Plaintiff Ningde Amperex Technology Limited (“ATL”) and Defendant Zhuhai CosMX Battery Co., Ltd. (“CosMX”) (collectively with ATL, the “Parties”). (Dkt. Nos. 201, 202, 203, 204, 205, 206, 207, 208, 209, 224, 226, 258, 259, 261, 262, 267, 283, and 296.) This Order memorializes the Court’s rulings on the aforementioned pretrial motions and MILs as announced from the bench and into the record, including additional instructions that were given to the Parties. While this Order summarizes the Court’s rulings as announced into the record during the pretrial hearing, this Order in no way limits or constrains such rulings from the bench. Accordingly, it is hereby **ORDERED** as follows:

PRETRIAL MOTIONS

1. CosMX's Motion for Partial Summary Judgment (Dkt. No. 202)

The motion was **DENIED**. (Dkt. No. 314 at 35:5-36:16). The Court found that CosMX failed to show any binding authority indicating that an allegedly solicited no-poach agreement is *per se* illegal under a Sherman Act Section 2 claim. (*Id.* at 35:5-11.)

2. ATL's Motion for Summary Judgment on CosMX's Counterclaims Nos. 7, 8, 9, and 11 (Dkt. No. 209)

The motion was **DENIED**. (*Id.* at 58:13-59:5). First, the Court was not persuaded that the FTAIA applies, and it found that this case may be directed to import commerce under *In re Lithium Ion Batteries Antitrust Litig.*, 2017 WL 2021361 (N.D. Cal. May 12, 2017). (*Id.* at 58:18-21). Second, the Court found that there is a material fact issue remaining as to whether harm to CosMX constitutes harm to competition in the market considering the market share that CosMX and ATL possess collectively. (*Id.* at 58:22-25.) Third, the Court found there are sufficient ties to California for the California claims. (*Id.* at 58:25-59:1.) Fourth, the Court found there are material fact issues remaining regarding whether CosMX acted out of fear regarding its extortion claim. (*Id.* at 59:2-5.)

3. CosMX's Motion to Strike Portions of Lin Tiankai's Declaration (Dkt. No. 208)

The parties announced on the record that the motion is **WITHDRAWN**. (*Id.* at 59:8-16.)

4. CosMX's Motion to Strike Dr. Michael P. Akemann Expert Reports (Dkt. No. 206)

The motion was **GRANTED-IN-PART** and **DENIED-IN-PART**. (*Id.* at 65:9-68:7.) Concerning CosMX's contention that Dr. Akemann opines on purely legal issues, the Court **GRANTED-IN-PART** CosMX's request to strike Paragraphs 11-14, 53-54, and 95-96. The Court found that certain portions of Dr. Akemann's report go too far in opining on Fifth Circuit and Supreme Court caselaw. (*Id.* at 65:12-20.) The Court struck portions of Paragraph 13 and 14 of

Dr. Akemann's expert report. For Paragraph 13, the Court struck the phrase "as a matter of law" from the first sentence and the entirety of the second sentence. The unstruck portions of Paragraph 13 include the first sentence ending at the word "impossibility." (*Id.* at 65:21-66:10.) For Paragraph 14, the Court struck the second sentence, the fourth sentence, and the phrase "As such" from the beginning of the third sentence. (*Id.* at 66:11-67:7.)

Concerning CosMX's arguments that Dr. Akemann improperly evaluates and opines on the credibility of facts, the Motion was **DENIED**. (*Id.* at 67:8-68:7.) CosMX represented that the counterstatements to those complained of in Dr. Akemann's report are clearly set forth in the counter expert's report and will be included in his anticipated testimony. The Court declined to prohibit one expert from opining on the issue but not the other. (*Id.*)

The parties represented that the remaining grounds for the Motion are moot given the Court's ruling on Dkt. No. 202 and the parties' withdrawal of Dkt. No. 208. (*Id.* at 59:22-61:7.) As such, relief on those grounds is **DENIED AS MOOT**.

5. ATL's Motion to Exclude the Expert Opinions and Testimony of Dr. Brett Lucht (Dkt. No. 207)

The motion was **GRANTED-IN-PART** and **DENIED-IN-PART**. (*Id.* at 94:4-95:17.) The Court **GRANTED** ATL's Motion concerning Dr. Lucht's new noninfringement theories under element 1[c] of the '987 Patent. (*Id.* at 94:8-18.) The Court struck Paragraphs 145-171 of Dr. Lucht's rebuttal report on noninfringement, finding that they relate to new noninfringement theories that were not previously raised in CosMX's noninfringement contentions. (*Id.*)

The Court also **GRANTED** ATL's Motion concerning Dr. Lucht's new invalidity theories. (*Id.* at 95:5-17.) The Court struck Paragraphs 172-174 and 205, finding that they raise improper, late-disclosed invalidity theories. (*Id.*)

Concerning ATL's objection to "Grounds 10 and 11" in Dr. Lucht's report, the Court **DENIED** the Motion. (*Id.* at 92:19-95:4.) The Court found that Defendant's theory was consistent with those disclosed in their contentions. (*Id.*)

6. ATL's Motion to Bifurcate CosMX's Antitrust and State Law Counterclaims (Dkt. No. 205), ATL's Motion to Sever and Transfer CosMX's Antitrust and State Law Counterclaims (Dkt. No. 259), and CosMX's Motion to Reorder the Presentation of Evidence Pursuant to FRCP 611 (Dkt. No. 226)

The Court, having considered the motions on the briefing and determining that no argument was necessary, summarily **DENIED** all three motions at the Pretrial Conference. (*Id.* at 96:9-97:3.)

Concerning ATL's Motion to Bifurcate CosMX's Antitrust and State Law Counterclaims (Dkt. No. 205), the Court finds that bifurcation is not necessary "[f]or convenience, to avoid prejudice, or to expedite and economize" the trial. Fed. R. Civ. P. 42(b). "Under Rule 42(b), a district court has broad discretion in separating issues and claims for trial as part of its wide discretion in trial management." *Gardco Mfg., Inc. v. Herst Lighting Co.*, 820 F.2d 1209, 1212 (Fed. Cir. 1987). "Ordinarily, a jury is entitled to hear all of the evidence and deliberate over all of the issues in the case at one time." *Pharmerica Corp. v. Advanced HCS LLC*, No. 2:17-CV-00180-JRG, 2018 WL 3326822, at *1 (E.D. Tex. May 1, 2018). "Bifurcation is thus the exception, not the rule, and 'the party seeking bifurcation shoulders the heavy burden of establishing that bifurcation is warranted.'" *Id.* The Court finds that ATL has not met this "heavy burden." Accordingly, the motion was **DENIED**.

Concerning ATL's Motion to Sever and Transfer CosMX's Antitrust and State Law Counterclaims (Dkt. No. 259), the Court finds that severance is not warranted. "A district court has wide discretion to sever a claim against a party into separate cases." *In re Rolls Royce Corp.*, 775 F.3d 671, 680 (5th Cir. 2014). "In the Fifth Circuit, the accepted basis for Rule 21 severance analysis considers five factors: (1) whether claims arise out of the same transaction, occurrence,

or series of transactions or occurrence; (2) whether the claims present common questions of law or fact; (3) whether settlement of the claims or judicial economy would be facilitated; (4) whether prejudice would be avoided if severance were granted; and (5) whether different witnesses and documentary proof are required for the separate claims.” *Def. Distributed v. Bruck*, 30 F.4th 414, 431 (5th Cir. 2022) (citing *Rolls Royce*, 775 F.3d at 680).

Here, at least three of the five factors weigh against severance. First, the claims arise out of the same transaction or occurrence. Specifically, the conduct of the parties in the pre-suit licensing negotiations between the parties are key background facts to both the patent and antitrust claims. Although CosMX is not alleging that the assertion of the U.S. Patents was baseless, the pre-suit negotiations concerned ATL’s behavior of threatening lawsuits in both China and the U.S., and the negotiations were for global licenses, including licensing to both U.S. and Chinese Patents. Second, there is at least some overlap in witnesses between the patent and antitrust claims—including the corporate representatives for both parties who will require travel from China to attend. Third, ATL fails to show that having two trials instead of one would enhance judicial economy. This is not a case where resolution of the patent claims could potentially moot the issues in the antitrust counterclaims, or vice versa, such that severing the claims could potentially result in a single smaller trial. ATL has not made any compelling showing that severance would reduce the time needed for trial on the claims and counterclaims. Indeed, the Court finds the overall time needed for trial would likely increase if the claims were severed due to the overlap in factual background and witnesses for the claims and counterclaims.

As for the remaining two factors, the CosMX has not shown that there are any common questions of law or fact between the patent infringement claims and the antitrust counterclaims

pertinent to the Motion to Sever.¹ However, this one factor does not dominate the analysis. Regarding prejudice, ATL argues that the antitrust counterclaims “could sway the jury against ATL and its patent claims simply by their assertion,” but patent infringement claims and antitrust counterclaims are tried together all the time. (Dkt. No. 259 at 8.) ATL has not shown that it will be unduly prejudiced or that severance is necessary to avoid such prejudice.

Weighing the totality of the severance factors, ATL has not met its burden to show that severance is warranted. Accordingly, the motion is **DENIED**. Since ATL’s Motion to Transfer is conditioned on the Court severing the counterclaims, which it has declined to do, the Motion to Transfer is **DENIED AS MOOT**.

Concerning CosMX’s Motion to Reorder the Presentation of Evidence Pursuant to FRCP 611 (Dkt. No. 226), the Court finds that reordering the presentation of evidence is not warranted. The Court has broad discretion over the ordering of the presentation of evidence. CosMX chose to file its antitrust counterclaims as counterclaims in this case and not affirmative claims in a separate case. As a consequence, its counterclaims go second in the order of the presentation of evidence. If CosMX desired to present its case to the jury first, it could have filed such as affirmative claims in a separate independent action. It chose not to do so. The Court finds no compelling reason to declare CosMX the *de facto* plaintiff by allowing it to present its evidence first. Accordingly, the motion is **DENIED**.

¹ CosMX argues that CosMX’s counterclaims relate to its unclean hands defense. (Dkt. No. 284 at 6.) However, the unclean hands defense is an equitable issue that will be tried separately to the bench regardless of whether the counterclaims are severed or not. CosMX also argues that there is “significant factual overlap in the jury’s analysis of the markets for lithium-ion batteries and how and to whom they are sold.” (*Id.*) While this may show that the claims arise out of the same transaction or occurrence, CosMX fails to meet its burden to show that this presents a common question of fact for the jury.

7. CosMX's Motion to Exclude Alan Ratliff's Opinions Concerning Damages for Indirect Infringement (Dkt. No. 201)

The motion was **DENIED**. (Dkt. No. 314 at 117:10-119:21.) The Court found that this case is distinguishable from *Cyntec Co., Ltd. v. Chilisin Elecs. Corp.* (*Id.* at 117:15-21, 118:4-9, 119:11-20); *see --- F.4th ---, 2023 WL 6798376, at *6-8* (Fed. Cir. October 16, 2023). Specifically, notwithstanding the similarities between Mr. Ratliff's analysis and that of the expert in *Cyntec*, Mr. Ratliff conducted a reasonable royalty analysis while the expert in *Cyntec* conducted a lost profits analysis. (Dkt. No. 314 at 117:15-21.) The Court reasoned that a lost profits calculation by its very nature requires a higher degree of precision than a reasonable royalty calculation, and the calculation of a reasonable royalty is based on what information would be available to the parties in a hypothetical negotiation. (*Id.*) Further distinguishing this case from *Cyntec* is the fact that ATL attempted to seek out information on the units of CosMX's batteries entering the U.S. through third party discovery requests sent to CosMX's customers, but such information was not available. (*Id.* at 117:22-118:3, 118:10-25.)

The Court also noted that motions to strike and *Daubert* motions call for the severe remedy of outright exclusion and should be reserved for the clearest cases of flawed analysis. (*Id.* at 119:1-6.) The Court found that CosMX failed to carry its burden to show that Mr. Ratliff's analysis calculating a reasonable royalty was so flawed as to warrant excluding the same. Robust cross-examination provides a fair means by which to address these issues.

8. CosMX's Motion to Strike Certain Portions of ATL's Expert Reports Relying on the Patent Trials and Appeals Board (Dkt. No. 203)

The parties announced on the record that the motion is **WITHDRAWN** in light of an agreement between the parties. (*Id.* at 120:11-121:12.) The parties agree as follows:

We've conferred and we agree that no one's going to talk about [the] PTAB, either their experts or us, unless somebody thinks someone's opened the door, in which

case they always have the right to approach Your Honor and ask for leave to go into that.

(*Id.* at 120:25-121:4.)

9. CosMX’s Motion for Leave to Serve Supplemental Expert Report of Dr. Brett Lucht (Dkt. No. 224)

The motion was **DENIED**. (*Id.* at 128:12-17.) The Court found that CosMX failed to meet its burden in showing good cause to supplement Dr. Lucht’s report. (*Id.*) The newly discovered information in Dr. Lucht’s supplemental report relates to a *prior art* electrolyte. The Court compelled CosMX to request the chemical compositions of *Accused Product* electrolytes from its suppliers, not information related to its own prior art that it could have—but chose not to—request from its suppliers during discovery. Accordingly, CosMX has not met its burden to show good cause to supplement.

10. ATL’s Motion for Leave to Supplement the Opening Expert Reports of Dr. Steve Martin, Louis Hruska, and Dr. Troy Hayes (Dkt. No. 258)

The parties indicated on the record that this Motion was **WITHDRAWN** with respect to the supplemental report of Louis Hruska. (*Id.* at 128:23-129:2, 138:4-8.) The Motion with respect to the supplemental reports for Dr. Martin and Dr. Hayes was **GRANTED**. (*Id.* at 138:9-139:1.)

The Court found that the supplemental information and analysis provided by Dr. Martin was added as a result of the late disclosure of information by CosMX. (*Id.* at 138:9-19.) Such information was not available at the time of Dr. Martin’s original report, and CosMX only produced the information after being compelled by this Court to produce such. (*Id.*) The Court found that had such information been disclosed in a timely manner, there is no reason to doubt that it would have been included in the original report. (*Id.*)

Concerning Dr. Hayes, the Court found that the supplements were made in light of the deposition of Mr. He, which took place after the close of fact discovery. (*Id.* at 138:20-139:1.) The Court found this to adequately support the late inclusion of the targeted supplement. (*Id.*)

11. CosMX’s Motion for Summary Judgment That Any Certificate of Correction Issued in U.S. Patent No. 10,833,363 Should Apply Prospectively (Dkt. No. 204)

The Motion was **DENIED**.² (*Id.* at 143:10-13.) The Court found that CosMX had not met its burden in providing a statutory basis for relief. (*Id.*)

12. ATL’s Motion for Discovery Sanctions (Dkt. No. 267)

The Motion was **DENIED**. (*Id.* at 163:19-165:23.) The Court found that neither party was without blemish in both the initial discovery dispute underlying this motion and the resolution of the dispute by party agreement. Notwithstanding the failures of both parties, the Court found that the broad discovery sanctions sought in the motion—to make one study of data representative of hundreds of accused product models—was overly broad and not warranted by the complained of conduct. (*Id.* at 164:6-11, 165:8-13.)

13. Conditional Motion for Leave to Serve Discovery Requests Out of Time (Dkt. No. 283)

The Motion was **DENIED**. (*Id.* at 169:15-170:18.) The Court found that there was no compelling reason why ATL could not have pursued these documents and deposition topics prior to the close of fact discovery. Specifically, CosMX’s counterclaims explicitly state that the assertion of the eight Chinese Patents in the June 21, 2021 letter was baseless, and ATL’s own statements and arguments throughout this case indicate that ATL has long been on notice of the relevance of the eight Chinese Patents in the June 21, 2021 letter. (*Id.* at 169:15-25.) The Court finds no compelling reason why ATL could not have sought discovery related to the eight Chinese

² CosMX requested that the Court ruled on the papers, and expressly declined its opportunity to present oral argument on this matter. (*Id.* at 139:9-19.)

Patents—including the deposition topics and document requests in its motion—prior to the close of fact discovery.

14. Conditional Motion for Leave to Amend Answer to Counterclaims (Dkt. No. 296)

The parties indicated on the record that this Motion has been **WITHDRAWN** pursuant to the party agreement in the Notice filed on January 11, 2024. (Dkt. No. 306.) Per the parties' agreement, CosMX does not oppose ATL's request to add an affirmative defense based on the *Noerr-Pennington* doctrine, and ATL **WITHDRAWS** its request to add an affirmative defense based on judicial estoppel in view of the Court's January 8 Order (Dkt. 300). Accordingly, the Court **GRANTS** CosMX's Motion for Leave to Amend its Answer to add the affirmative defense based on the *Noerr-Pennington* doctrine. The remainder of the Motion is **DENIED-AS-MOOT**.

MOTIONS IN LIMINE

Further to the Court's Standing Order on Motions *In Limine* issued August 11, 2023, it is **ORDERED** that the Parties, their witnesses, and counsel shall not raise, discuss, or argue the following before the venire panel or the jury without prior leave of the Court:

I. PLAINTIFF'S MOTIONS *IN LIMINE* (Dkt. No. 262)

Plaintiff's MIL 1 Preclude Reference to Correction of Inventorship

CosMX indicated on the record that its opposition to Plaintiff's MIL 1 is **WITHDRAWN**. (Dkt. No. 314 at 171:172:9.) Plaintiff's MIL 1 is **GRANTED**. (*Id.*)

Plaintiff's MIL 2 Preclude reference to ATL lacking evidence of infringement that CosMX withheld in discovery

ATL indicated on the record that this MIL is **WITHDRAWN**. (*Id.* at 172:10-173:4.)

Plaintiff's MIL 3 Preclude Reference to ATL's Privilege Log

CosMX indicated on the record that its opposition to Plaintiff's MIL 3 is **WITHDRAWN**. (*Id.* at 173:10-22.) Plaintiff's MIL 3 is **GRANTED**. (*Id.*)

Plaintiff's MIL 4 Preclude Reference to ATL's Assertion of Any Patents as Baseless

The MIL was **DENIED AS PRESENTED**. (187:19-189:24.) The Court *sua sponte* imposes a MIL that both the parties are to approach the bench prior to any time that they want to use the words "baseless," "frivolous," or any similar language. (*Id.*)

Plaintiff's MIL 5 Preclude Reference to CosMX's IPO Listing Price

The MIL was **DENIED**. (*Id.* at 191:7-192:5.)

Plaintiff's request for relief from MIL 6

ATL indicated that its request for relief from MIL 6 is **WITHDRAWN**. (*Id.* at 120:11-121:12.)

Plaintiff's request for relief from MIL 9

ATL's request for relief from the Court's Standing MIL 9 was **DENIED**. (*Id.* at 194:14-195:16.) The Court noted that the Standing MILs are not absolute bars from the presentation of certain categories of evidence but exist to allow the Court to be an active gatekeeper against presentation of certain categories of evidence that once heard or seen by the jury cannot be taken back. (*Id.*) The Court clarified that if either party wishes to be relieved of one of the Court's standing MILs, the appropriate method for requesting such is to approach the bench and seek leave of Court during trial at the time the parties desire to present such evidence. (*Id.*)

II. DEFENDANT'S MOTIONS *IN LIMINE* (Dkt. No. 261)

Defendant's MIL 1 **To Limit Evidence Related to Infringement Actions Based on Chinese Patents Not Included in ATL's June 21, 2021, Notification Letter to CosMX**

The MIL was **GRANTED**. (*Id.* at 201:24-202:9.) The Court clarified that the parties are permitted to freely discuss the eight Chinese Patents in the June 21, 2021 letter, but that either party would be required to seek leave before presenting any evidence related to other Chinese Patents not asserted in the June 21, 2021 letter. (*Id.*)

Defendant's MIL 2 **To Limit Evidence Related to Work ATL or its Affiliates Performed to Assess Patent Infringement Prior to Sending its June 21, 2021, Notification Letter to CosMX**

CosMX indicated on the record that this MIL is **WITHDRAWN**. (*Id.* at 174:21-24.)

Defendant's MIL 3 **To Exclude Reference to Teaching Away, Hindsight Bias, Benefits of Claimed Inventions, or "Cherry-Picking" Concerning Anticipatory Prior Art References**

The MIL was **DENIED**. (*Id.* at 212:23-213:7.) The Court clarified that to the extent that any party views the other as raising improper evidence with regard to an invalidity defense, they should object at the time the evidence is being offered. (*Id.*)

Defendant's MIL 4 **To Preclude Reference to ATL's Parent Company**

The MIL was **DENIED**. (*Id.* at 214:12-216:3.) The Court explained that it will not prohibit both sides from presenting the factual underpinnings of who they are and what they do. (*Id.*) However, the Court strongly cautioned both parties that more than a simple reference in passing to either party's place of origin is likely to be found improper. (*Id.*) The Court warned that it will be an active gatekeeper in ensuring that the parties do not attempt to appeal to any potential juror biases or prejudices, and that if the parties continually reference a party's nationality the Court will take appropriate action. (*Id.*)

The Court also clarified that in order to adequately assess potential juror biases during *voir dire*, the parties may ask questions related to bias towards people "of Asian descent," but the parties should avoid references to specific countries within Asia, avoid any comparison between Asian countries, and avoid any questions that may elicit juror answers indicating a preference for any particular Asian country as preferable over another. (*Id.* at 218:8-19.)


Defendant's MIL 5 **To Limit Evidence, Argument, and Testimony Regarding the Publication and Availability of Printed Prior Art**

The MIL was **DENIED**. (*Id.* at 244:4-6.)

The parties are directed to jointly prepare a redacted version of this Order for public viewing and to file the same on the Court's docket as an attachment to a Notice of Redaction within three (3) days of this Order.

So Ordered this

Jan 30, 2024



RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NINGDE AMPEREX TECHNOLOGY,) CAUSE NO. 2:22-CV-232-JRG
LIMITED,)
Plaintiff,)
vs.)
ZHUHAI COSMX BATTERY CO., LTD., (MARSHALL, TEXAS
Defendant.) FEBRUARY 8, 2024
8:00 A.M.

VOLUME 6

TRIAL ON THE MERITS
BEFORE THE HONORABLE RODNEY GILSTRAP
UNITED STATES CHIEF DISTRICT JUDGE
and a jury

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1 And at any point along the way as we cover the material
2 page by page, if you have an objection to make as to something
3 you believe should not have been included or something that
4 you believe should not have been omitted, then you're free to
5 make those objections on the record.

6 So whoever's going to speak for the respective parties,
7 please go to the podium. And I really don't care if it's two
8 people or more than two people as long as we have one person
9 speaking for Plaintiff and one person speaking for Defendant.

10 I understand there's been an allocation of authority
11 between counsel with regard to the patent issues and the
12 antitrust issues, so it is not limited to two people only.
13 It's limited to one person per side as we go through the
14 process.

15 So with that, I'll turn to the final jury instructions,
16 beginning on the cover page or page 1. Is there objection
17 here from either Plaintiff or Defendant?

18 MS. YANG: Not from Plaintiff.

19 MR. TOTTEN: Good morning, Your Honor. Not from
20 Defendant.

21 THE COURT: Turning then to page 2 of the final jury
22 instructions, is there objection here from either party?

23 MS. YANG: No.

24 MR. TOTTEN: No, Your Honor.

25 THE COURT: Next is page 3, is there objection here?

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Federal Official Court Reporter

1 MS. YANG: No objection.

2 MR. TOTTEN: No, Your Honor.

3 THE COURT: Next is page 4. Is there any objection?

4 MS. YANG: No objection.

5 MR. TOTTEN: No, Your Honor.

6 THE COURT: Page 5, is there any objection?

7 MS. YANG: No.

8 MR. TOTTEN: No, Your Honor.

9 THE COURT: Page 6, is there any objection?

10 MS. YANG: No objection.

11 MR. ANDERSON: Yes, Your Honor. Defendant has an
12 objection on page 6.

13 THE COURT: State your objection.

14 MR. ANDERSON: The objection is to the -- the
15 sentence that begins on page 6 and continues on the top of
16 page 7, imposing a burden of proof of clear and convincing
17 evidence in connection with the Noerr-Pennington claim. We
18 believe the correct standard is the preponderance of the
19 evidence standard, so we object on that basis.

20 THE COURT: All right. That objection is overruled.
21 Anything further on page 6?

22 If not, we'll turn to page 7. Are there any objections
23 here?

24 MS. YANG: No objection.

25 MR. TOTTEN: No objection.

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1 MR. ANDERSON: Only that the sentence continues over
2 to page 7.

3 THE COURT: Duly-noted. That being the case, I'll
4 turn to page 8 of the final jury instructions. Are there
5 objections here from either party?

6 MS. YANG: No objection.

7 MR. TOTTEN: No, Your Honor.

8 THE COURT: Page 9, any objections?

9 MS. YANG: No objection.

10 MR. TOTTEN: No, Your Honor.

11 THE COURT: Page 10, any objections?

12 MS. YANG: No objection.

13 MR. TOTTEN: No, Your Honor.

14 THE COURT: Page 11, any objections?

15 MS. YANG: Yes, Your Honor. Plaintiff would like to
16 lodge an objection due to the omission of the curative claim
17 construction regarding the '352 Patent in view of the expert
18 testimony regarding the definition of the term 'corresponding'
19 portion rendered by CosMX's expert witness.

20 THE COURT: All right. That objection is overruled.
21 Anything further on page 11?

22 MR. TOTTEN: Not from Defendant, Your Honor.

23 THE COURT: Anything further here from Plaintiff?

24 MS. YANG: Nothing.

25 THE COURT: Then we'll turn to page 12. Is there

Shawn M. McRoberts, RMR, CRR
Federal Official Court Reporter

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

NINGDE AMPEREX TECHNOLOGY
LIMITED,

Plaintiff,

v.

ZHUHAI COSMX BATTERY CO., LTD.,

Defendant.

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CIVIL ACTION NO. 2:22-CV-00232-JRG

FINAL JUDGMENT

A jury trial commenced in this case on February 1, 2024. On February 9, 2024, the jury returned a unanimous verdict (Dkt. No. 345) finding that Defendant Zhuhai CosMX Battery Co. Ltd. (“CosMX”) infringed one or more claims asserted by Plaintiff Ningde Amperex Technology Limited (“ATL”), such claims being claims 1 and 17 of U.S. Patent No. 10,964,987 (the “’987 Patent”), claim 1 of U.S. Patent No. 10,833,363 (the “’363 Patent”), and claim 1 of U.S. Patent No. 11,329,352 (the “’352 Patent”) (collectively, the “Asserted Claims”); that such infringement was willful; that claims 1 and 17 of the ’987 Patent were not invalid; that claim 1 of the ’363 Patent was invalid; that claim 1 of the ’352 Patent was invalid; that ATL should recover from CosMX \$3,701,108.00 for such infringement through the date of trial; that CosMX did not prove that ATL’s threat of Chinese patent litigation in ATL’s June 21, 2021 letter was both objectively baseless and an attempt to interfere directly with the business relationships of one or more competitors through the use of the litigation process; and that CosMX did not prove that ATL had engaged in anticompetitive conduct in a relevant market.

On April 11, 2024, ATL and CosMX filed a Joint Notice on Equitable Issues (Dkt. No. 368), stipulating the following regarding their equitable disputes that were to be tried before the Court at a bench trial:

1. CosMX has brought a counterclaim under the California Unfair Competition Law (UCL) Dkt. 123 at 34 (Count Nine), which the Court has determined is an equitable claim to be tried to the Court, not the jury. Dkt. No. 303. As a result of the jury verdict in this case, the Parties agree that the UCL claim is moot, and the Court may enter judgment in favor of ATL as to that claim.
2. CosMX's affirmative defenses of "unclean hands" and "patent misuse" (Dkt. 123 at 9, Seventh Affirmative Defense) can be considered to have been withdrawn.
3. In addition to CosMX's equitable claims and defenses discussed above, ATL has already sought or will be seeking equitable relief, including its requests for enhanced damages and ongoing royalties. The parties agree these issues can be resolved by motion practice.
4. The parties reserve their right to appeal the judgment or to preserve the judgment based on evidence in the record.

(Dkt. No. 365.) Subject to these stipulations, the Parties agreed that a bench trial, to be held after the return of the jury's verdict herein, is not necessary on the equitable issues in this case, and the Court should proceed to enter a Final Judgment in the case based on the jury's verdict. (*Id.*)

Pursuant to Rule 58 of the Federal Rules of Civil Procedure and in accordance with the jury's unanimous verdict, the Court hereby **ORDERS** and **ENTERS JUDGMENT** as follows:

1. CosMX has infringed one or more of the Asserted Claims;
2. CosMX has willfully infringed one or more of the Asserted Claims;
3. Claim 1 of the '363 Patent is invalid;
4. Claim 1 of the '352 Patent is invalid;


5. ATL is hereby awarded compensatory damages for such infringement from and against CosMX, and ATL shall accordingly have and recover from CosMX the sum of \$3,701,108.00 U.S. Dollars;
6. ATL's threat of Chinese patent litigation was not both objectively baseless and an attempt to interfere directly with the business relationships of one or more competitors through the use of the litigation process, and accordingly, ATL is not liable for violating the Sherman Act or the UCL (Cal. Bus. & Prof. Code § 17200);
7. ATL did not engage in anticompetitive conduct in a relevant market;
8. Pursuant to Federal Rule of Civil Procedure 54(d), Local Rule CV-54, and 28 U.S.C. § 1920, ATL is the prevailing party in this case and shall recover its costs from CosMX, and ATL is directed to file its proposed Bill of Costs;
9. Considering the jury's finding of willfulness, and the Court having considered the totality of the circumstances together with the added material benefit of having presided throughout the jury trial and having seen both the same evidence and heard the same arguments as the jury, concludes that enhancement of the compensatory award herein is warranted under 35 U.S.C. § 284. Consequently, the Court enhances the damages award in the amount of \$1,000,000.00. ATL shall therefore have and recover from CosMX the additional sum, over and above the compensatory amount set forth above, the sum of \$1,000,000.00 U.S. Dollars;
10. Pursuant to 35 U.S.C. § 284 and Supreme Court guidance that "prejudgment interest should ordinarily be awarded absent some justification for withholding such an award," the Court awards pre-judgment interest applicable to all sums awarded herein,

calculated at the 5-year U.S. Treasury Bill rate, compounded quarterly, from the date of infringement through the date of entry of this Judgment; and

11. Pursuant to 28 U.S.C. § 1961, the Court awards post-judgment interest applicable to all sums awarded herein, at the statutory rate, from the date of entry of this Judgment until paid.

Any request for relief pursuant to 35 U.S.C. § 285 must be filed as a subsequent motion herein within 28 days of this Judgment. Having enhanced damages as set forth above, the Court **DENIES AS MOOT** ATL's Motion for Enhanced Damages (Dkt. No. 364). All other relief requested by either party which is now pending before the Court and not specifically awarded herein is **DENIED**.

So ORDERED and SIGNED this 26th day of April, 2024.



RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NINGDE AMPEREX TECHNOLOGY
LIMITED,

Plaintiff,

v.

ZHUHAI COSMX BATTERY CO., LTD.,

Defendant.

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CIVIL ACTION NO. 2:22-CV-00232-JRG

ORDER

Before the Court is Ningde Amperex Technology Limited's ("ATL") Post-Trial Motion for Ongoing Royalty (the "Motion"). (Dkt. No. 371.) Following the filing of the Motion, the ATL and Zhuhai CosMX Battery Co., Ltd. ("CosMX") parties continued to meet and confer to negotiate a resolution to the Motion. On August 22, 2024, the parties filed a stipulation agreeing to a royalty rate and royalty based (the "Stipulation"). (Dkt. No. 423.) In the Stipulation, the parties agree to a royalty of 1% of the sales of a stipulated "Royalty Base" of 39% of CosMX worldwide sales, and the parties further stipulate to certain reporting requirements for determining the appropriate royalty to be paid. (Dkt. No. 423.)

Having considered the Motion and the Stipulation, the Court finds that the Motion should be and hereby is **GRANTED AS MODIFIED**. Accordingly, the ongoing royalty rate in this case is hereby **SET** at 1% of the stipulated Royalty Base. Further the Court **ADOPTS** the Stipulation of the parties and all the requirements and duties therein.

So **ORDERED** and **SIGNED** this 3rd day of September, 2024.



RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

NINGDE AMPEREX TECHNOLOGY
LIMITED,

Plaintiff,

v.

ZHUHAI COSMX BATTERY CO., LTD.,

Defendant.

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CIVIL ACTION NO. 2:22-CV-00232-JRG

AMENDED FINAL JUDGMENT

A jury trial commenced in this case on February 1, 2024. On February 9, 2024, the jury returned a unanimous verdict (Dkt. No. 345) finding that Defendant Zhuhai CosMX Battery Co. Ltd. (“CosMX”) infringed one or more claims asserted by Plaintiff Ningde Amperex Technology Limited (“ATL”), such claims being claims 1 and 17 of U.S. Patent No. 10,964,987 (the “’987 Patent”), claim 1 of U.S. Patent No. 10,833,363 (the “’363 Patent”), and claim 1 of U.S. Patent No. 11,329,352 (the “’352 Patent”) (collectively, the “Asserted Claims”); that such infringement was willful; that claims 1 and 17 of the ’987 Patent were not invalid; that claim 1 of the ’363 Patent was invalid; that claim 1 of the ’352 Patent was invalid; that ATL should recover from CosMX \$3,701,108.00 for such infringement through the date of trial; and that CosMX did not prove that ATL’s threat of Chinese patent litigation in ATL’s June 21, 2021 letter was both objectively baseless and an attempt to interfere directly with the business relationships of one or more competitors through the use of the litigation process.¹

¹ Based on the Court’s granting-in-part of the relief sought in CosMX’s JMOL Motion (Dkt. No. 386), reference to the jury’s answer to Question 6a has been omitted.

The Court previously entered Final Judgment on April 26, 2024 (Dkt. No. 369.) Subsequently, the parties filed a Joint Post-Trial Motion Regarding Supplemental Damages, requesting that the Court amend the judgment to include an award of supplemental damages and prejudgment interest. (Dkt. No. 387.) The Court subsequently granted the motion. Additionally, CosMX moved without opposition to amend the final judgment to exclude reference to the jury's answering of question 6a on the verdict form. The Court subsequently granted-in-part the motion on these grounds. This Amended Final Judgment is entered to implement the inclusion of supplemental damages and prejudgment interest, and to remove reference to the jury's answering of question 6a on the verdict form. Additionally, the parties resolved ATL's post-trial motion for an ongoing royalty (Dkt. No. 371) pursuant to a stipulation concerning the ongoing royalty and the reporting requirements concerning the same (the "Stipulation"). (Dkt. No. 423.) The Court has adopted the parties' Stipulation and granted the motion for an ongoing royalty by separate order.

Pursuant to Rule 58 of the Federal Rules of Civil Procedure and in accordance with the jury's unanimous verdict, the Court hereby **ORDERS** and **ENTERS JUDGMENT** as follows:

1. CosMX has infringed one or more of the Asserted Claims;
2. CosMX has willfully infringed one or more of the Asserted Claims;
3. Claim 1 of the '363 Patent is invalid;
4. Claim 1 of the '352 Patent is invalid;
5. ATL is hereby awarded compensatory damages for such infringement from and against CosMX, and ATL shall accordingly have and recover from CosMX the sum of \$3,701,108.00 U.S. Dollars;
6. ATL's threat of Chinese patent litigation was not both objectively baseless and an attempt to interfere directly with the business relationships of one or more competitors

through the use of the litigation process, and accordingly, ATL is not liable for violating the Sherman Act or the UCL (Cal. Bus. & Prof. Code § 17200);

7. Pursuant to Federal Rule of Civil Procedure 54(d), Local Rule CV-54, and 28 U.S.C. § 1920, ATL is the prevailing party in this case and shall recover its costs from CosMX, and ATL is directed to file its Bill of Costs;
8. Considering the jury's finding of willfulness, and the Court having considered the totality of the circumstances together with the added material benefit of having presided throughout the jury trial and having seen both the same evidence and heard the same arguments as the jury, concludes that enhancement of the compensatory award herein is warranted under 35 U.S.C. § 284. Consequently, the Court enhances the damages award in the amount of \$1,000,000.00. ATL shall therefore have and recover from CosMX the additional sum, over and above the compensatory amount set forth above, the sum of \$1,000,000.00 U.S. Dollars;
9. ATL is awarded an ongoing forward-looking reasonable royalty from CosMX at the rate of 1% of the agreed "Royalty Base," defined as 39% of worldwide sales of "Existing Models" and "New Models" of the accused products according to the parties' Stipulation; the ongoing royalties accrue on a quarterly basis and are to be reported and due no later than 30 days after the end of each calendar quarter; the award of the ongoing royalty is subject to all other agreements between the parties concerning the ongoing royalty set forth within the parties' Stipulation; and
10. Pursuant to 35 U.S.C. § 284 and Supreme Court guidance that "prejudgment interest should ordinarily be awarded absent some justification for withholding such an award," the Court awards pre-judgment interest applicable to all sums awarded herein; pursuant

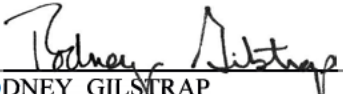
to the agreement of the parties, the Court awards \$459,127 U.S. Dollars in supplemental damages and prejudgment interest.

11. Pursuant to 28 U.S.C. § 1961, the Court awards post-judgment interest applicable to all sums awarded herein, at the statutory rate, from the date of entry of this Judgment until paid.

12. This Amended Final Judgment shall be and is effective for all purposes as of April 26, 2024, being the date of entry of the original Final Judgment herein.

All other relief requested by either party which is now pending before the Court and not specifically awarded herein is **DENIED**.

So **ORDERED** and **SIGNED** this 3rd day of September, 2024.



RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

NINGDE AMPEREX TECHNOLOGY
LIMITED,

Plaintiff,

v.

ZHUHAI COSMX BATTERY CO., LTD.,

Defendant.

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CIVIL ACTION NO. 2:22-CV-00232-JRG

FILED UNDER SEAL

AMENDED MEMORANDUM OPINION AND ORDER

Before the Court is Zhuhai CosMX Battery Co., Ltd.’s (“CosMX”) Motion for Judgment as a Matter of Law, for New Trial, and to Amend Judgment (the “Motion”). (Dkt. No. 386.) In the Motion, CosMX moves for Judgment as a Matter of Law (“JMOL”) regarding the validity of U.S. Patent No. 10,964,987 (the “’987 Patent”), regarding willfulness, and regarding indirect infringement. (*Id.*) Additionally, CosMX moves to amend the Court’s Final Judgment to exclude reference to the jury’s answer to Question 6a. (*Id.*) Having considered the Motion and the subsequent briefing, the Court is of the opinion that CosMX’s Motion should be and hereby is **GRANTED-IN-PART** and **DENIED-IN-PART**.

I. BACKGROUND

Plaintiff Ningde Amperex Technology Limited’s (“ATL”) alleged that CosMX infringed claims 1 and 17 of the ’987 Patent, claim 1 of U.S. Patent No. 10,833,363 (the “’363 Patent”), and claim 1 of U.S. Patent No. 11,329,352 (the “’352 Patent”). CosMX alleged that all three asserted patents were anticipated or rendered obvious by prior art. Specifically, for the ’987 Patent, CosMX asserted that claim 1 was anticipated by U.S. Patent No. 9,190,668 (“Ueki”) and that claims 1 and

17 were anticipated by an iPod Touch 6's battery. After a jury trial, the jury found all three patents to be infringed. The jury also found that claim 1 of the '363 Patent and claim 1 of the '352 Patent were invalid, but it found that CosMX had not met its burden to show that either claim of the '987 Patent was invalid. The jury further found that CosMX willfully infringed one or more of the asserted patents.

CosMX also filed counterclaims in this case asserting that ATL violated federal antitrust laws by threatening to bring patent infringement claims in China. Under the *Noerr-Pennington* doctrine, a party is ordinarily exempt from antitrust liability for bringing a lawsuit against a competitor. *Tyco Healthcare Grp. LP v. Mut. Pharm. Co.*, 762 F.3d 1338 (Fed. Cir. 2014). However, there is a recognized exception for "sham litigation," which the Supreme Court has defined as litigation that (1) is "objectively baseless" and (2) motivated by a desire to interfere directly with the business relationships of the competitor. *Id.* (quoting *Prof'l Real Estate Investors, Inc. v. Columbia Pictures Indus., Inc.*, 508 U.S. 49, 60–61 (1993)). The jury found that CosMX did not prove by clear and convincing evidence that ATL's threat of Chinese patent litigation was both objectively baseless and an attempt to interfere with the business relationships of one or more competitors through the litigation process. (Dkt. No. 345.) The jury was further instructed that if they answered "No" to the question concerning the *Noerr-Pennington* doctrine (Question 5), that the jury should not continue to answer Question 6 concerning the elements of antitrust liability. (*Id.*) Despite answering "No" to the *Noerr-Pennington* question, the jury continued to answer Question 6a and found that CosMX did not prove by a preponderance of the evidence that ATL engaged in anticompetitive conduct in a relevant market. (*Id.*)

II. LEGAL STANDARD

A. Judgment as a Matter of Law

“Judgment as a matter of law is proper when ‘a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue.’” *Abraham v. Alpha Chi Omega*, 708 F.3d 614, 620 (5th Cir. 2013) (quoting Fed. R. Civ. P. 50(a)). The non-moving party must identify “substantial evidence” to support its positions. *TGIP, Inc. v. AT&T Corp.*, 527 F. Supp. 2d 561, 569 (E.D. Tex. 2007). “Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1363 (Fed. Cir. 2004).

“The Fifth Circuit views all evidence in a light most favorable to the verdict and will reverse a jury’s verdict only if the evidence points so overwhelmingly in favor of one party that reasonable jurors could not arrive at any contrary conclusion.” *Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1361 (Fed. Cir. 2018) (citing *Bagby Elevator Co. v. Schindler Elevator Corp.*, 609 F.3d 768, 773 (5th Cir. 2010)). A court must “resolve all conflicting evidence in favor of [the verdict] and refrain from weighing the evidence or making credibility determinations.” *Gomez v. St. Jude Med. Daig. Div. Inc.*, 442 F.3d 919, 937–38 (5th Cir. 2006).

B. New Trial

Rule 59 provides that a new trial may be granted on all or part of the issues on which there has been a trial by jury for “any reason for which a new trial has heretofore been granted in an action at law in federal court.” Fed. R. Civ. P. 59(a). Notwithstanding the broad sweep of Rule 59, “courts do not grant new trials unless it is reasonably clear that prejudicial error has crept into the record or that substantial justice has not been done, and the burden of showing harmful error rests on the party seeking the new trial.” *Metaswitch Networks Ltd. v. Genband US LLC*, 2017 WL 3704760, at *2 (E.D. Tex. Aug. 28, 2017); *Erfindergemeinschaft UroPep GbR v. Eli Lilly & Co.*,

276 F. Supp. 3d 629, 643 (E.D. Tex. 2017). “A new trial may be granted, for example, if the district court finds the verdict is against the weight of the evidence, the damages awarded are excessive, the trial was unfair, or prejudicial error was committed in its course.” *Smith v. Transworld Drilling Co.*, 773 F.2d 610, 612–13 (5th Cir. 1985); *see also Laxton v. Gap Inc.*, 333 F.3d 572, 586 (5th Cir. 2003) (“A new trial is warranted if the evidence is against the great, and not merely the greater, weight of the evidence.”). Furthermore “[u]nless justice requires otherwise, no error in admitting or excluding evidence—or any other error by the court or a party—is ground for granting a new trial . . . the court must disregard all errors and defects that do not affect any party’s substantial rights.” Fed. R. Civ. P. 61.

III. DISCUSSION

CosMX makes four separate requests for relief in its Motion: (1) CosMX is entitled to a judgment that claims 1 and 17 of the ’987 Patent are invalid; (2) CosMX is entitled to a judgment of non-willfulness; (3) the judgment should be amended to disregard the jury’s answer to Question 6a; and (4) ATL failed to prove indirect infringement. The Court addresses each in turn.

A. Validity of claims 1 and 17 of the ’987 Patent

Regarding the Ueki and iPod prior art references, CosMX argues that “[n]o reasonable jury could have found that Ueki did not anticipate claim 1, or that the iPod Touch 6 (‘iPod’) did not anticipate claims 1 and 17.” (Dkt. No. 386 at 1.) First, CosMX contends that Ueki discloses every limitation of claim 1 of the ’987 Patent, including an express disclosure of 15 examples having a Dv90 and thickness that anticipate claim 1. (*Id.* at 2 (citing Trial Tr. at 581:25-590:12, 591:25-592:22.)) According to CosMX, the only basis on which ATL and its expert Dr. Hayes purported to dispute Dr. Lucht’s testimony concerning Ueki was to argue that Ueki does not disclose “the thickness of the porous layer” at all. (*Id.*) However, CosMX contends that Dr. Hayes conceded that one of Ueki’s examples had a Dv90 of 4 microns, and, in at least one place, a “thickness” of

“3.5.” (*Id.* (quoting Trial Tr. at 1112:18-1113:22)). CosMX argues that the ratio between this Dv90 and the thickness of the porous layer is well within claim 1’s limitation, and the same is true for all of the fifteen other examples in Ueki. (*Id.*)

According to CosMX, Dr. Hayes’ concessions are dispositive, and ATL’s efforts to minimize them fail as a matter of law. (*Id.*) For example, CosMX notes that it is well-established that disclosure of a single point in a range anticipates the entire range. (*Id.* (citing *Atlas Powder Co. v. Ireco, Inc.*, 190 F.3d 1342, 1346 (Fed. Cir. 1999))). Thus, CosMX argues, it does not matter that “Ueki does not expressly recite the *entire* Dv90-to-thickenss-ratio ‘range of 0.3 to 3.0’ as claim 1 does.” (*Id.*) Further, CosMX asserts that ATL is wrong that a porous layer cannot fall within claim 1 if there is any variation in the porous layer’s thickness since, according to CosMX, it is undisputed that the ’987 patent’s porous layer does not have a single, uniform thickness any more than Ueki does. (*Id.* at 3.) At the very least, CosMX argues, Ueki does not include a limitation requiring such uniformity. (*Id.*) CosMX also alleges that ATL’s attempt to distinguish Ueki from the claimed invention by noting that Ueki does not disclose measuring “average thickness” essentially urges the a new and belated claim construction. (*Id.* at 4.)

According to CosMX, that the thickness need not be uniform is further demonstrated by the fact that ATL never argued that the accused products contain such uniformity. (*Id.* at 3.) Thus, according to CosMX, ATL alleged that the ’987 Patent could be *infringed* by a product without a uniformly thick porous layer, but demanded far more of Ueki for invalidity. (*Id.*) Since ATL “failed to make as part of its infringement case the very showing it says was necessary to prove anticipation,” CosMX argues that judgment in its favor is warranted—if not on anticipation, then on infringement. (*Id.*)

Concerning the iPod battery, CosMX argues that Dr. Lucht's testimony was materially undisputed. (*Id.* at 4.) CosMX acknowledges that Dr. Hayes disputed that the iPod satisfied the Dv90-to-thickness-ratio limitation, arguing that the iPod battery was old when tested and that certain battery attributes can change over time. However, CosMX notes that Dr. Hayes conceded that inorganic particles do not "suddenly . . . disappear or suddenly appear over time." (*Id.* (quoting Trial Tr. at 1119:4-5)). CosMX further notes that he conceded that "the binder is not going to suddenly appear over time"—*i.e.*, that the thickness would not have changed over time. (*Id.*) Thus, CosMX argues that Dr. Hayes' argument about degradation over time actually has nothing to do with the Dv90-to-thickness-ratio limitation. (*Id.*)

Finally, CosMX argues that ATL's failure to apportion damages compels a take-nothing judgment or a new trial. Specifically, CosMX argues that even if only claim 1 is invalid, but not claim 17, then claim 1's invalidity would necessitate a take-nothing judgment or a new trial since neither ATL nor the jury apportioned the damages between these two claims. CosMX suggests that a take-nothing judgment (as opposed to a new trial) is warranted because despite having ample opportunity to do so at trial, ATL never presented evidence apportioning the damages between these claims.

In response, ATL argues that Ueki does not anticipate claim 1 and the jury's verdict should not be overturned because the undisputed evidence presented at trial confirmed that Ueki does not disclose the Dv90-to-thickness-ratio limitation or teach the significance of controlling the ratio to improve battery performance. (Dkt. No. 402 at 2.) First, ATL argues that Ueki does not provide any measurement for the "thickness of the porous layer," meaning that it cannot possibly include the claimed ratio within the four corners of the document. (*Id.*) According to ATL, Dr. Lucht attempted to circumvent the limitation for measuring the thickness of the porous layer by pointing

to Ueki's disclosure of "maximum height" and "variation on the surface." (*Id.*) ATL compares this to measuring the "thickness" of the Earth's mantle by looking solely at the altitude of Mt. Everest (*Id.* at 7.) ATL contended at trial that a single measured maximum peak at a single point cannot accurately yield the "thickness of the porous layer" as a whole. Importantly, ATL points out that Dr. Lucht conceded that Ueki does not disclose measuring the "average thickness." (*Id.* at 3 (Trial Tr. at 783:13-785:3)). According to ATL, this provided the jury with sufficient evidence to conclude that Ueki did not disclose measuring the "thickness of the porous layer."

According to ATL, CosMX's theory that the "highest point" of the porous layer serving as a surrogate for the "thickness of the porous layer" amounts to a belated claim construction argument. ATL contends that CosMX effectively demanded that ATL prove that there is not a single location in Ueki's porous layer that could fall within the claimed range, even accidentally. However, it notes that CosMX never asked for such a construction, and thus it argues that it was free to contend that Ueki did not anticipate the claims because it did not disclose the "average thickness" of the porous layer. (*Id.* at 2-3.) While ATL disagrees that it is requesting a new claim construction from the Court, and it instead argues that CosMX is the party urging the Court to adopt a new (and waived) claim construction. (*Id.* at 7.)

ATL further notes that Dr. Lucht admitted that Ueki does not teach the importance of calculating the ratio of Dv90 to the thickness of the porous layer:

Q. It never says it would be important to look at the ratio of Dv90 to the thickness of the separator. Right?

A. It does not have that specific statement, no.

Q. It also does not teach the range of .3 to 3.0. Right?

A. It does not teach the range of the ratio? No.

Trial Tr. at 788:13-788:17.

ATL argues that CosMX's attempt to "find cover behind ATL's infringement allegations," is unavailing. (Dkt. No. 402 at 6.) Specifically, ATL argues that neither party argued that a porous layer must have "uniform thickness." (*Id.*) However, it does contend that the "average thickness" is the thickness referred to in the '987 Patent, which as explained above, ATL contends is absent from Ueki. According to ATL, its infringement theory is not susceptible to the same mistakes as Dr. Lucht's analysis of Ueki. (*Id.*) For example, ATL contends that the substantial evidence for CosMX's infringement came from CosMX's own technical documents (*e.g.*, [REDACTED]) that specifically identified the thickness of the porous layer in CosMX's products (*i.e.*, the "average thickness" of the porous layer as a whole). (*Id.*)

Concerning the iPod Touch 6, ATL argues that CosMX's arguments should be denied for the same reasons as for Ueki. (*Id.* at 8.) Specifically, ATL argues that the battery itself does not disclose or enable a POSITA to calculate the ratio of Dv90 of the inorganic particles to the thickness of the porous layer, nor does it teach the significance of controlling the Dv90 of the inorganic particles as a function of the thickness of the porous layer.

However, even assuming *arguendo* that CosMX overcomes the lack of teaching or disclosure, ATL argues that CosMX fails to discredit Dr. Hayes's testimony. (*Id.*) Specifically, although CosMX argues that Dr. Hayes conceded that "the thickness would not actually have changed" in the six-and-a-half years since the iPod Touch was made, ATL argues that this concession does not mean that the iPod Touch's battery anticipates the '987 Patent. Rather, ATL contends that Dr. Hayes made no more than a narrow concession that inorganic particles would not "suddenly appear over time." (*Id.* at 9.) According to ATL, his opinion that the battery could have changed over time remained intact, and the jury was permitted to find that CosMX did not meet its burden in showing that the iPod Touch's battery anticipated the '987 Patent.

Moreover, ATL argues that CosMX ignores Dr. Hayes's criticisms of Dr. Lucht's methodology in addition to his final conclusions. (*Id.*) Specifically, ATL contends that Dr. Hayes identified material mistakes in Dr. Lucht's analysis that would drive the Dv90-to-thickness ratio outside of the claimed range, such as Dr. Lucht (1) cherry-picking a few locations on the porous layer (as he did with Ueki), (2) ignoring portions of the porous layer scraped off from the separator, and (3) artificially increasing the Dv90 numerator by double-counting certain large particles. (*Id.* (citing Trial Tr. at 1095:17-1096:20, 1096:21-1097:13. The net result of these errors, Dr. Hayes explained, was "the ratio of Dv90 to thickness in the iPod battery is actually below the .3 threshold in claim 1." (*Id.* (quoting Trial Tr. at 1094:9-22)). In sum, ATL argues that CosMX cannot provide a compelling reason why the jury could not have agreed with Dr. Hayes and thus it fails to show that it is entitled to JMOL.

In reply, CosMX argues that ATL wrongly contends that even if Ueki discloses the Dv90 and thickness, it cannot anticipate the patent without separately disclosing the importance of the ratio of those values. CosMX argues that it is axiomatic that "that which infringes, if later, would anticipate, if earlier." (Dkt. No. 412 at 2.) Thus, CosMX argues the only relevant question is whether Ueki's separator "compris[es]" the ratio in question; not whether it separately highlights the ratio or describes its particular importance. (*Id.*) Concerning the iPod Touch, CosMX similarly argues that a reference need not explain the importance of why it embodies the Patent to anticipate it. CosMX argues that merely embodying the Patent is sufficient. (*Id.* at 4.) Finally, CosMX argues that ATL "flagrantly mischaracterizes" its expert testimony by omitting qualifiers that it was merely "*possible*" that the ratio would fall outside of the claimed ratio based on Dr. Hayes' critiques of Dr. Lucht's analysis. (*Id.* at 5.)

In sur-reply, ATL argues that CosMX points to no evidence that is so overwhelming that it warrants overturning the jury's verdict. (Dkt. No. 418 at 1.) Viewing the testimony of both Dr. Lucht and Dr. Hayes in the light most favorable to the verdict, ATL argues that the critical admissions of Dr. Lucht support the jury's verdict that CosMX did not prove by clear and convincing evidence that Ueki and the iPod Touch invalidate the '987 Patent.

The Court agrees with ATL. First, Dr. Lucht made significant concessions concerning his analysis of Ueki. Dr. Lucht opined that the ratio of the Dv90 and thickness of the porous layer in Ueki fell in the range of 0.3 and 3.0, but on cross-examination, he admitted that the values he used for the "thickness of the porous layer" were actually the "maximum height" of the porous layer and the "variation on the surface," and he admitted that this was not the same as measuring the "average thickness" of the porous layer. These concessions are significant because Dr. Hayes testified that the thickness of the porous layer should be measured by taking the average thickness of the porous layer. The jury was entitled to credit Dr. Hayes over Dr. Lucht.

The Court agrees that it is CosMX, not ATL, that urges the Court to adopt a new claim construction. Tellingly, CosMX argues that "if the jury's finding of non-invalidity stands, it must necessarily be based on ATL's erroneous interpretation of the '987 Patent presented at trial which was never previously brought to the Court's attention." (Dkt. No. 386 at 5.) Thus, CosMX asks the Court to "construe the disputed claim terms, followed by a new trial." (*Id.*) CosMX is correct that this issue was never brought to the Court's attention. However, such does not mean that a new trial is warranted. CosMX has waived any argument that ATL's interpretation was necessarily erroneous and that the Court should construe this term. The time has long passed for CosMX to raise an *02 Micro* issue. CosMX cannot request a new construction for the first time during post-trial briefing in an effort to undo the jury's verdict. Since "thickness of the porous layer" was not

a term construed by the Court, the term was given its plain and ordinary meaning. The parties and their experts plainly disputed what the plain and ordinary meaning of that term was, and the jury was entitled to credit Dr. Hayes' testimony and disagree with Dr. Lucht.

Concerning the iPod battery, Dr. Hayes presented multiple critiques of Dr. Lucht's opinions and the underlying analysis. A reasonable juror could find that Dr. Lucht did not prove by clear and convincing evidence that the iPod anticipated the '987 Patent. CosMX argues that ATL "flagrantly mischaracterizes" the record because Dr. Hayes only opined that it was "*possible*" that Dr. Lucht's analysis would put the ratio of the iPod Touch outside of the claimed range. The Court does not consider this to be a "flagrant[]" mischaracterization of the record. Dr. Hayes had no burden to prove that the iPod Touch did not anticipate the claimed invention. Rather, the burden was on CosMX and Dr. Lucht to prove by *clear and convincing evidence* that Ueki and the iPod Touch anticipate the '987 Patent. A reasonable juror could have found that CosMX failed to meet its burden based on Dr. Hayes's critiques of Dr. Lucht's methodology, which casted doubt on whether Dr. Lucht's conclusions necessarily followed from his analysis. The jury was entitled to consider the credibility of the experts' analysis and methods—and the criticisms of the opposing party concerning the same—in determining which expert to believe.

CosMX does not provide any reason why Dr. Hayes's testimony should be discounted. Rather, it argues that Dr. Lucht's testimony and Dr. Hayes's testimony should be construed according to its preferred interpretation of the facts, which is in a light that is not favorable to the verdict. However, CosMX does not show why a reasonable juror could not find that it failed to meet its burden when construing the evidence in the light most favorable to the verdict. It is undisputed that the experts provided competing testimony concerning the validity of the '987 Patent. None of CosMX's arguments rise to a level of warranting JMOL.

Further, since CosMX has not shown that it is entitled to JMOL on either of the claims of the '987 Patent, its arguments for new trial or take-nothing damages are moot. Accordingly, the Court finds that the motion should be **DENIED** on these grounds.

B. Willfulness

Next, CosMX argues that no reasonable juror could find that CosMX's "conduct rose to the level of wanton, malicious, and bad-faith behavior required for willful infringement." (Dkt. No. 386 at 5-6 (quoting *SRI Int'l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1309 (Fed. Cir. 2019))). For example, CosMX contends that ATL presented no evidence of copying. (*Id.* at 6.) According to CosMX, ATL's only argument that CosMX willfully infringed the '987 Patent prior to trial was that, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Similarly, CosMX argues that there was no evidence to support ATL's contention that CosMX "repackaged" the '987 Patent into its "own patent applications," much less that "former ATL employees" misappropriated trade secrets to enable CosMX to do so. (*Id.*) CosMX notes that ATL's own witnesses conceded that ATL has never sued any former employee for taking trade secrets, nor does it have any actual knowledge of any employee misappropriating its intellectual property. (*Id.*) Further, CosMX notes that the testimony at trial demonstrated that CosMX never tested an ATL product until 2022, after infringement began. (*Id.* at 8.)

Next, CosMX argues that it had a good-faith belief in the invalidity of all three patents at issue. (*Id.* at 9.) CosMX notes that the jury agreed with respect to two of the three asserted patents. (*Id.*) Further, CosMX argues that it reasonably believed that many of its own products with

ceramic-coated separators anticipated the patent. (*Id.*) According to CosMX, this good faith belief means that ATL is not entitled to a judgment that CosMX willfully infringed the patents.

In response, ATL argues that CosMX waived its willfulness arguments because it failed to present them in a Rule 50(a) motion. However, even if such arguments were not waived, ATL argues that it presented substantial evidence upon which a reasonable juror could conclude that CosMX willfully infringed the '987 Patent. For example, ATL presented evidence (1) that CosMX hired a co-inventor of the '987 Patent (Trial Tr. at 352:3-7); (2) that many of CosMX's core research staff came from ATL (Trial Tr. at 974:21-25); (3) that 50% of CosMX's patent applications name at least one former ATL engineer as inventor (Trial Tr. at 240:3-9); (4) that CosMX filed a patent application that, according to Dr. Hayes, was almost identical to the '987 Patent (Trial Tr. at 314:11-19); (5) that [REDACTED]

[REDACTED] and (6) that at the time ATL applied for the '987 Patent, it [REDACTED]

[REDACTED] ATL argues that this constitutes substantial evidence upon which a reasonable juror could find that CosMX willfully infringed the '987 Patent.

ATL further states that CosMX's explanations of its actions are unavailing. First, ATL argues that it is of no consequence that [REDACTED] because the asserted claims of the '987 Patent do not merely claim a "ceramic-coated separator" but a specific Dv90-to-thickness ratio. (Dkt. No. 402 at 12.) Second, ATL contends that CosMX copied its *patents*, not "trade secrets" or "confidential" information, and thus its arguments that ATL has never accused former employees of stealing trade secrets is irrelevant. (*Id.*) Third, ATL

argues that [REDACTED]

[REDACTED] (*Id.* at 13.) Finally, ATL notes that CosMX did not produce an opinion of counsel letter indicating that it had a good faith belief in the invalidity of the '987 Patent. Even if it had done so, such would not outweigh the overwhelming evidence of copying.

The Court agrees with ATL.¹ CosMX does little to rebut the substantial evidence of willful infringement except to make the same arguments that it presented to the jury at trial, arguments that the jury evidently rejected. ATL presented a significant amount of circumstantial evidence at trial that CosMX copied the invention of its patents, including evidence that CosMX hired former inventors of the '987 Patent, [REDACTED]
[REDACTED], and the fact that CosMX filed applications for patents that were materially similar to the '987 Patent. As CosMX acknowledges, ATL proposed the theory that CosMX copied its technology and “then proposed theories as to how CosMX could conceivably have done so.” (Dkt. No. 412 at 8.)

The Court disagrees that ATL failed as a matter of law to carry its burden. While CosMX may disagree with the merits of this evidence, none of its arguments disqualify the evidence such that a reasonable juror could not have relied on such evidence under one or more of the multiple theories presented by ATL to find that ATL had met its burden. For example, although CosMX argues that it is nothing but a “red herring” that it hired ATL employees because the '987 Patent was in the public domain (*see id.* at 7), a reasonable juror could have found the similarities between CosMX's patent applications and the '987 Patent to constitute substantial evidence that CosMX was copying ATL's technology. Further, the jury did not need to accept this theory alone because, as CosMX admits, ATL offered multiple theories for why and how CosMX was copying ATL's

¹ The Court disagrees that CosMX waived its arguments for JMOL of no willfulness. *See* Trial Tr. at 1241:15-23. However, the Court agrees with ATL on the merits.

technology and adduced supporting circumstantial evidence for each theory. As with its invalidity arguments, CosMX essentially asks the Court to substitute its own interpretation of the facts for the jury's interpretation. The Court declines this invitation. CosMX has not persuaded the Court that its interpretation of the facts is the only interpretation or that the jury's conclusion was impermissible based on the evidence that was adduced at trial. In the face of this substantial evidence, the Court does not find it appropriate to overturn the jury's verdict finding that CosMX willfully infringed the '987 Patent.

C. Indirect Infringement

"CosMX expressly preserves for appellate and Supreme Court review the argument that ATL failed to prove indirect infringement because all of the activities alleged to constitute such infringement occurred extraterritorially." (Dkt. No. 386 at 12.) Moreover, CosMX argues that the Court should grant JMOL based on its contention that there was "no substantial evidence supporting the notion that any of the products ATL claims gave rise to such infringement were in fact imported into the United States." (*Id.*) Specifically, CosMX argues that "[i]t is undisputed that the overwhelming majority of CosMX's products are initially sold in China to companies that package them and put them into the stream of commerce without providing to CosMX their eventual destinations." (*Id.*) The only evidence, according to CosMX, that could support the fact that CosMX products ended up in the United States was Mr. Ratliff's "conjecture." (*Id.*)

ATL argues that "[t]here can be no doubt that CosMX's infringing products were imported into the United States because they were *directly marketed* by CosMX to U.S.-based customers, *certified* for the U.S. market, and *tailored* to each U.S. customer's specific requirements." (Dkt. No. 402 at 16.) ATL notes that CosMX's sales and marketing manager for the US market testified that CosMX "market[s] its battery cells directly to the brand customers," such as Apple and Dell. Trial Tr. at 559:5-10, 540:7-11.

The Court agrees with ATL. First, while the Court recognizes that CosMX “preserves” its arguments “for appellate and Supreme Court review,” the Court notes that CosMX does not put forward any substantive argument that it is entitled to relief from this Court based upon its assertion that all of its conduct in this case was extraterritorial. Further, CosMX acknowledges that under current Federal Circuit precedent, “extraterritorial acts that actively induce an act of direct infringement that occurs within the United States” are sufficient to establish liability for induced infringement under 35 U.S.C. § 271(b). *See Merial Ltd. v. Cipla Ltd.*, 681 F.3d 1283 (Fed. Cir. 2012). Accordingly, the Court finds that JMOL is not appropriate on these grounds.

Second, the record is replete with evidence that both ATL and CosMX manufacture their lithium-ion batteries knowing that they will be put into phones and tablets, many of which will go to the United States. *See e.g.*, Trial Tr. at 347:9-13 (“Q. Right. So a battery that's made by Zhuhai CosMX Battery that meets these parameters set forth here, will be capable of import to the United States, correct? A. Our batteries are sold worldwide, and U.S. would definitely be one of the place that it could end up.”) The Court agrees with ATL that “it strains credulity to argue that the CosMX products directly marketed to U.S. customers, certified for the U.S. market, and tailored to each U.S. customer’s specific size and power requirements had *no* actual sales to the U.S.” (Dkt. No. 418 at 9.) Accordingly, the Court finds that JMOL is not warranted with respect to indirect infringement.

D. Question 6a

The jury was instructed that if it answered “No” to Question 5 regarding the *Noerr-Pennington* doctrine, it should not answer Question 6 but instead should “proceed to the final page of this verdict form (the signature page).” (Dkt. No. 345 at 8.) The jury answered “No” to Question 5 but then proceeded to answer Question 6a. CosMX argues that the Court’s Final Judgment should be amended to exclude any reference to the jury’s answer to Question 6a. (Dkt. No. 386 at 11-12.)

ATL does not oppose CosMX's request to amend the judgment to exclude references to the answer to Question 6a. (Dkt. No. 402 at 15.)

Having considered CosMX's request, the briefing, and noting that the relief sought is unopposed, the Court finds that the Motion should be **GRANTED-IN-PART** on these grounds. After consideration of all other pending requests for relief in the parties' post-trial motions, the Court will enter an Amended Final Judgment and will exclude reference to the jury's answer to Question 6a.

IV. CONCLUSION

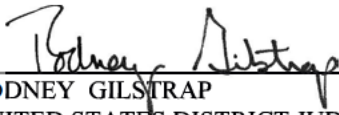
For the reasons stated herein, the Court finds that CosMX's JMOL Motion (Dkt. No. 385) and its Motion for a New Trial (Dkt. No. 384) should be and hereby are **GRANTED-IN-PART** and **DENIED-IN-PART**, as follows:

- A. CosMX's request for JMOL that claims 1 and 17 of the '987 patent are invalid is **DENIED**;
- B. CosMX's request that it is entitled to JMOL that its infringement was no willful is **DENIED**;
- C. CosMX's unopposed request that the Judgment should be amended to disregard the jury's answer to question 6a from the verdict is **GRANTED**; and
- D. CosMX's request for JMOL as to no indirect infringement is **DENIED**.

The parties are directed to jointly prepare a redacted version of this Order for public viewing and to file the same on the Court's docket as an attachment to a Notice of Redaction within five (5) business days of this Order.

This amended opinion and order is entered in lieu of and wholly replaces Dkt. No. 425 herein. This amended opinion and order is effective as of and from September 3, 2024, in all respects.

So ORDERED and SIGNED this 12th day of September, 2024.



RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE

8430081



Joint Trial Exhibit

JTX-004

NINGDE AMPEREX TECHNOLOGY LIMITED
v. ZHUHAI COSMX BATTERY CO., LTD.

2:22-cv-232-JRG

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

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United States Patent and Trademark Office

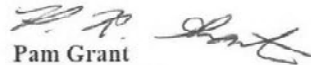
November 8, 2023

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM
THE RECORDS OF THIS OFFICE OF:

PATENT NUMBER: 10,964,987

ISSUE DATE: March 30, 2021

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office


Pam Grant
Certifying Officer



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US010964987B2

(12) **United States Patent**
Yi et al.

(10) **Patent No.:** **US 10,964,987 B2**
(45) **Date of Patent:** **Mar. 30, 2021**

(54) **SEPARATOR AND ENERGY STORAGE
DEVICE**

(71) Applicant: **Ningde Ampere Technology Limited,**
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(72) Inventors: **Jianjian Yi**, Fujian (CN); **Xinzhi
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(73) Assignee: **Ningde Ampere Technology Limited,**
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(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 79 days.

(21) Appl. No.: **16/013,887**

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H01M 2/16 (2006.01)
H01M 2/14 (2006.01)
H01M 50/449 (2021.01)
H01M 10/0525 (2010.01)
H01M 50/403 (2021.01)
H01M 50/411 (2021.01)
H01M 50/446 (2021.01)

(52) **U.S. Cl.**
CPC **H01M 50/449** (2021.01); **H01M 10/0525**
(2013.01); **H01M 50/403** (2021.01); **H01M**
50/411 (2021.01); **H01M 50/446** (2021.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2018/0123107 A1* 5/2018 Yu H01M 4/505
2019/0123319 A1* 4/2019 Shimura H01M 2/1646
2019/0305278 A1* 10/2019 Sasaki H01M 4/62
2019/0355953 A1* 11/2019 Nam H01M 2/1686

FOREIGN PATENT DOCUMENTS

CN 1882436 A 12/2006
CN 103155217 A 6/2013
CN 103474602 A 12/2013
CN 205004376 U 1/2016

* cited by examiner

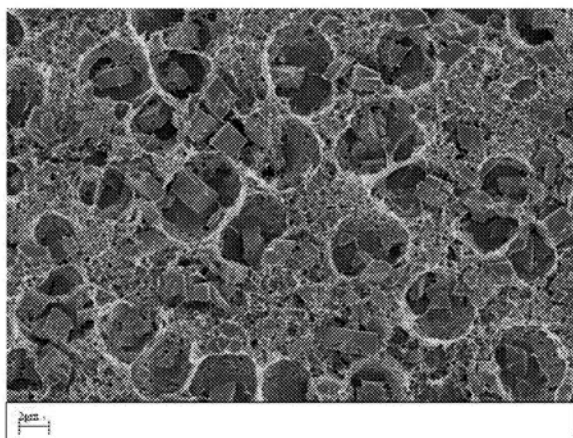
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LLP

(57) **ABSTRACT**

The application provides a separator and an energy storage device. The separator comprises: a porous substrate; and a porous layer arranged on a surface of the porous substrate, wherein the porous layer comprises inorganic particles and a binder, and a ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0. Excellent adhesion exists between the separator and the electrode according to the present application, which ensures that the energy storage device has good safety performance. Moreover, the rate performance and cycle performance of the energy storage device can be greatly improved due to the existence of inorganic particles in the separator.

17 Claims, 2 Drawing Sheets



ATL_COSMX_0075690

JTX-004.0002

Appx601

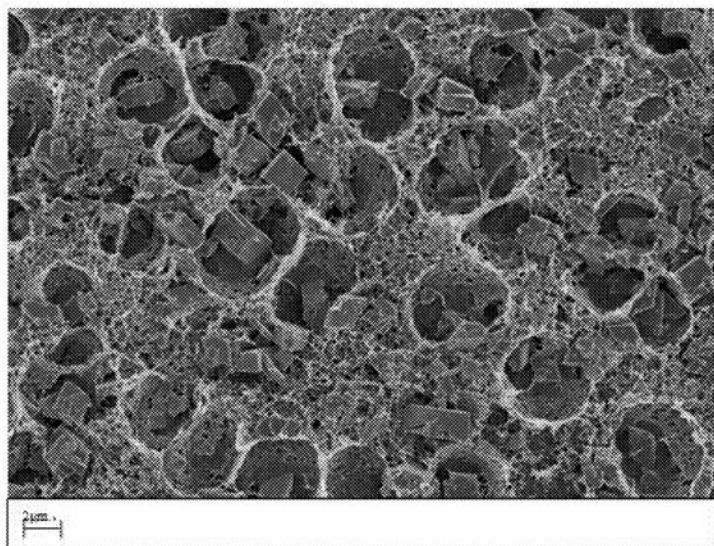


FIG.1

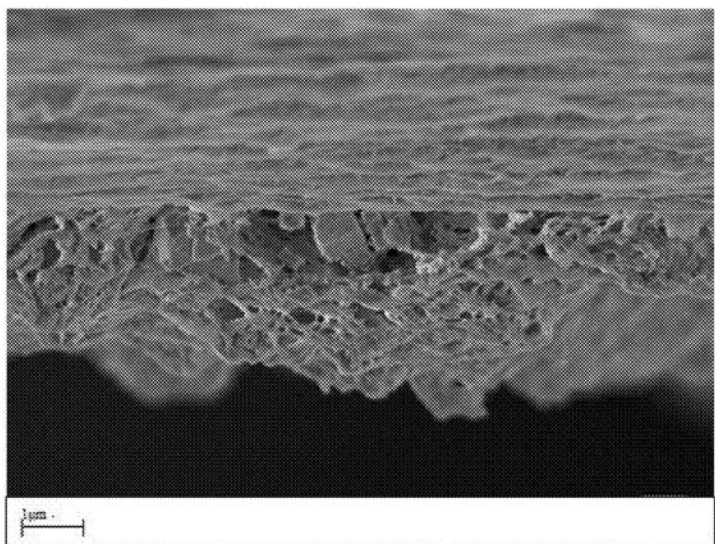


FIG.2

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Appx602

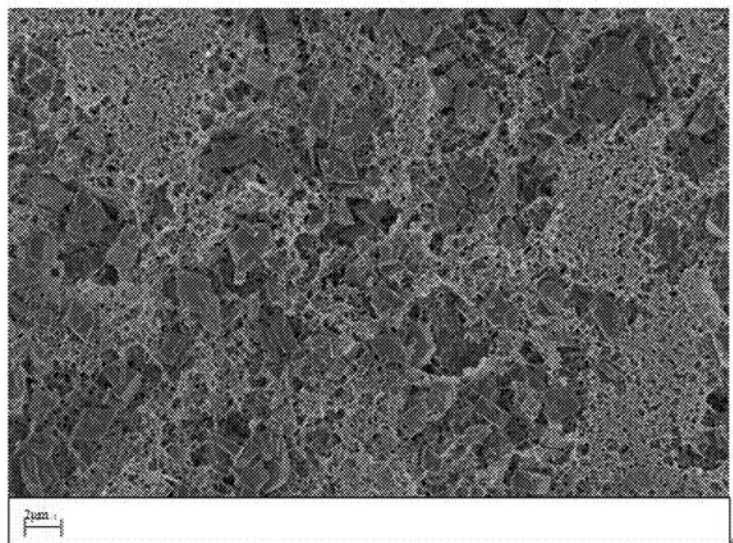


FIG.3

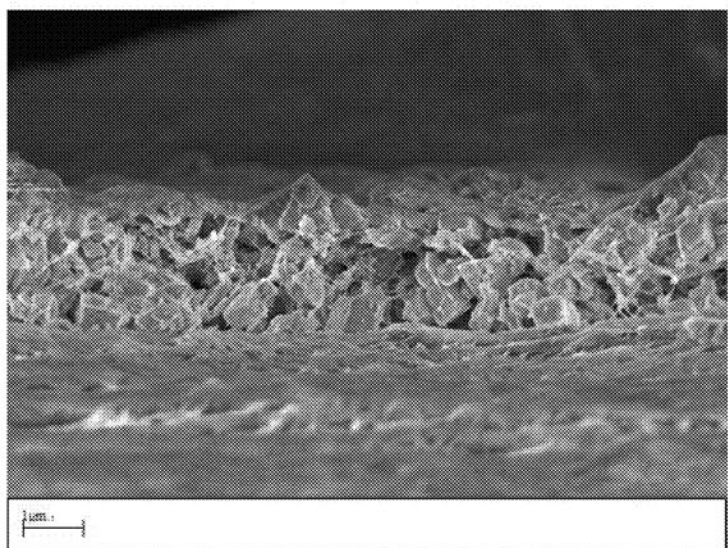


FIG.4

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Appx603

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SEPARATOR AND ENERGY STORAGE
DEVICECROSS REFERENCES TO RELATED
APPLICATIONS

This application claims the benefit of Chinese Patent Application No. 201810321779.5 filed on Apr. 11, 2018. The entire contents of the above application are hereby incorporated by reference in their entirety.

FIELD OF THE APPLICATION

The application relates to the field of energy storage devices, and in particular, to a separator and an energy storage device.

BACKGROUND OF THE APPLICATION

Non-aqueous secondary batteries, particularly lithium-ion batteries, are widely used in portable electronic devices such as notebook computers, digital cameras, camcorders, and cellphones, due to their high energy density and good rate performance. In recent years, the application of lithium-ion batteries as the power supply for electrical vehicles, is also promoting the development of lithium-ion battery technology. In the cycle process of the lithium-ion battery, with the progress of charging and discharging, there will be a gap between the electrode and the separator, resulting in a reduction of the cycle capacity of the lithium-ion battery and thereby having an influence on its service life. Therefore, there is an urgent need for a technical solution to solve the problem of the gap between the separator and the electrode so as to improve the service life of the lithium-ion battery.

SUMMARY OF THE APPLICATION

A separator and an energy storage device are provided according to the present application. With the separator provided by the application, not only the problem of the gap between the separator and the electrode can be solved, but also excellent adhesive force between the separator and the electrode can be maintained; moreover, the rate performance and cycle performance of the energy storage device can be improved due to the pore structures maintained in the separator of the application.

A separator is provided according to an example of the present application. The separator comprises: a porous substrate; and a porous layer arranged on a surface of the porous substrate, wherein the porous layer comprises inorganic particles and a binder, and a ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range of 0.3 to 3.0. The Dv90 of the inorganic particles refers to a particle size which reaches 90% the cumulative volume from the side of small particle size in the granularity distribution on a volume basis.

In the above-described separator, the porous layer has a thickness of 0.2 μm to 10 μm .

In the above-described separator, the porous layer has pores formed by the binder, and the inorganic particles are distributed in the pores.

In the above-described separator, the pores have an average pore size of 0.3 μm to 20 μm .

In the above-described separator, the volume ratio of the inorganic particles to the binder is in a range from 0.2 to 3.0. In the above-described separator, the porous layer has a porosity of 20% to 90%.

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In the above-described separator, the inorganic particles are one or more selected from the group consisting of alumina, silica, magnesia, titanium oxide, hafnium dioxide, tin oxide, zirconia, cerium dioxide, nickel oxide, zinc oxide, calcium oxide, boehmite, aluminum hydroxide, magnesium hydroxide, calcium hydroxide, and barium sulfate.

In the above-described separator, the binder is one or more selected from the group consisting of polyvinylidene fluoride, vinylidene fluoride-hexafluoropropylene copolymer, polyamide, polyacrylonitrile, polyacrylate, polyacrylic acid, polyacrylates, sodium carboxymethylcellulose, polyvinylpyrrolidone, polyvinyl ether, polymethyl methacrylate, polytetrafluoroethylene and polyhexafluoropropylene.

An energy storage device is further provided according to the present application, which comprises the above-described separator.

In the above-described energy storage device, the energy storage device is a lithium-ion battery.

A method for preparing a separator is further provided according to the present application, the method comprising the steps of:

mixing inorganic particles with a binder to generate a mixture, and adding a first solvent into the mixture and stirring the mixture with the first solvent to obtain a uniform coating solution; coating the uniform coating solution onto a surface of a porous substrate to form a wet film; immersing the wet film into a coagulating solution for phase transformation; and drying the phase-transformed wet film to obtain the separator.

In the above-described method, the solid content in the coating solution is in a range of 7% to 25%.

In the above-described method, the coagulating solution comprises a second solvent and a third solvent, and the second solvent has a mass percentage of 20% to 60%.

In the above-described method, the first solvent is one or more independently selected from the group consisting of N-methylpyrrolidone (NMP), dimethylacetamide (DMAC) and dimethylformamide (DMF).

In the above-described method, the porous substrate comprises a polymer film, a multilayer polymer film, or a non-woven fabric formed of any one or more of the following polymers: polyethylene, polypropylene, polyethylene terephthalate, polyphthaloyl diamine, polybutylene terephthalate, polyester, polyacetal, polyamide, polyimide, polyetheretherketone, polyaryletherketone, polyetherimide, polyamide imide, polybenzimidazole, polyethersulfone, polyphenylene oxide, cycloolefin copolymer, polyphenylene sulfide, and polyethylene naphthalene.

In the above-described method, the polyethylene is at least one component selected from the group consisting of high density polyethylene, low density polyethylene, and ultrahigh molecular weight polyethylene.

In the above-described method, the second solvent is one or more independently selected from the group consisting of N-methylpyrrolidone, dimethylacetamide and dimethylformamide, and the third solvent is one or more selected from the group consisting of deionized water, ethanol, propanol, acetone, dimethyl carbonate and diethyl carbonate.

An excellent adhesion exists between the separator and the electrode according to the present application, thus ensuring that the energy storage device has good safety performance. Moreover, the porous layer is arranged on a surface of the separator, and the inorganic particles contained in the pores in the porous layer can serve to support the pores, and therefore the pores can be well protected from being destroyed. As such, the probability of pore blockage due to compression and swelling in the separator is reduced,

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the separator would exhibit high ionic conductivity, and the rate performance and cycle performance of the energy storage device are greatly improved.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

FIG. 1 is an electronic microscope image (3000 times magnification) of pores of the lower surface of the porous layer (i.e., the surface of the porous layer that is away from the porous substrate) in example 3;

FIG. 2 is an electronic microscope image (10,000 times magnification) of the cross section of the porous layer in the thickness direction in example 3;

FIG. 3 is an electronic microscope image (3000 times magnification) of pores of the lower surface of the porous layer (i.e., the surface of the porous layer that is away from the porous substrate) in comparative example 2; and

FIG. 4 is an electronic microscope image (10,000 times magnification) of the cross section of the porous layer in the thickness direction in comparative example 2.

DETAILED DESCRIPTION OF THE PREFERRED EXAMPLES

Exemplary examples will be described in details. While these exemplary examples may be implemented in various forms, the applications should not be construed as limited to the examples of the application set forth herein. Rather, these examples are provided with the purpose of making the disclosure of the application thorough and complete and fully conveying the scope of the application to those skilled in the art.

A separator and a preparation method thereof as well as an energy storage device according to the present application will be described in details hereinafter.

In a first aspect of the application, the separator comprises a porous substrate and a porous layer. The porous layer is arranged on a surface of the porous substrate. Specifically, the porous layer is arranged on one surface of the porous substrate, or the porous layer is arranged on both surfaces of the porous substrate, or the porous layer is arranged on part of the surface of the porous substrate. The porous substrate comprises a polymer film, a multilayer polymer film, or a non-woven fabric formed of any one or more of the following polymers: polyethylene, polypropylene, polyethylene terephthalate, polyphthaloyl diamine, polybutylene terephthalate, polyester, polyacetal, polyamide, polyimide, polyetheretherketone, polyaryletherketone, polyetherimide, polyamide imide, polybenzimidazole, polyethersulfone, polyphenylene oxide, cycloolefin copolymer, polyphenylene sulfide, and polyethylene naphthalene. The above-mentioned polyethylene is at least one component selected from the group consisting of high density polyethylene, low density polyethylene, and ultrahigh molecular weight polyethylene.

In an example of the application, the porous layer arranged on the porous substrate comprises a binder and inorganic particles. The porous layer has pores formed by the binder, and the pores at least comprises a part of the inorganic particles. A ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0. The Dv90 of the inorganic particles refers to a particle size which reaches 90% the cumulative volume from the side of small particle size in the granularity distribution on a volume basis. The binder is one or more selected from the group consisting of polyvinylidene fluoride, vinylidene fluo-

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ride-hexafluoropropylene copolymer, polyamide, polyacrylonitrile, polyacrylate, polyacrylic acid, polyacrylates, sodium carboxymethylcellulose, polyvinylpyrrolidone, polyvinyl ether, polymethyl methacrylate, polytetrafluoroethylene and polyhexafluoropropylene. The binder can provide a sufficient binding interface for the electrode, thus ensuring a high adhesive force between the separator and the electrode, and enabling the energy storage device (such as a lithium-ion battery) to have a high safety performance.

The pores in the porous layer allow the separator to have good electrolyte diffusion and absorption capabilities, improving the ionic conductivity of the separator, and thereby improving the rate performance of the energy storage device (such as a lithium-ion battery). The average pore size of the porous layer is not less than 0.3 μm , which makes the separator have good electrolyte diffusion and absorption capabilities, improves the ionic conductivity of the separator, reduces the polarization reaction, and thus can improve the rate performance of the energy storage device (such as a lithium-ion battery). The porous layer may have a porosity of 20% to 90%.

The inorganic particles distributed in the pores of the porous layer provide a good mechanical support for the porous layer, preventing the porous layer from compressing and collapsing during processing the energy storage device (such as a lithium-ion battery), and preventing the porous layer from being compressed and destroyed. Inorganic particles refer to a class of inorganic materials obtained from natural or synthetic compounds through the process of shaping and high-temperature sintering or the like. The inorganic particles are one or more selected from the group consisting of alumina, silica, magnesia, titanium oxide, hafnium dioxide, tin oxide, zirconia, cerium dioxide, nickel oxide, zinc oxide, calcium oxide, boehmite, aluminum hydroxide, magnesium hydroxide, calcium hydroxide, and barium sulfate. The inorganic particles may contain polar functional groups such as a hydroxyl group. The surface of the inorganic particles containing polar functional groups can be more easily combined with the non-solvent (third solvent) in the coagulating solution in the preparation process, which facilitates the diffusion of the non-solvent (third solvent) into the porous layer along the surface of the inorganic particles so that larger pores are formed in the vicinity of the inorganic particles, and the rate performance of the energy storage device (such as a lithium-ion battery) is thereby improved. The non-solvent (third solvent) in the coagulating solution will be described below.

In an example of the present application, the volume ratio of the inorganic particles to the binder in the porous layer is in a range from 0.2 to 3.0. An exchange between the first solvent in the coating solution and the third solvent in the coagulating solution can be increased by increasing the volume ratio of the inorganic particles to the binder, and the porosity of the porous layer is increased; conversely, if the volume ratio of the inorganic particles to the binder is reduced, the porosity of the porous layer will be decreased. If the volume ratio of the inorganic particles to the binder is too low, the average pore size of the porous layer will be decreased, and the porosity of the porous layer will be decreased; moreover, if the content of inorganic particles is decreased, the mechanical strength and heat resistance of the porous layer is decreased. If the volume ratio of the inorganic particles to the binder is too high, the adhesive force of the porous layer will be reduced, and the porous layer is easily detached from the surface of the porous substrate, resulting in deterioration of the safety performance of the energy storage device (such as a lithium-ion battery).

The porous layer has a thickness of 0.2 μm to 10 μm . If the thickness of the porous layer is too high, the gas permeability of the porous layer will be deteriorated, and the rate performance of the energy storage device (such as a lithium-ion battery) will be decreased. If the thickness of the porous layer is too low, the adhesive force of the porous layer will be reduced, a gap will easily occur between the separator and the electrode, and the hardness of the energy storage device (such as a lithium-ion battery) will be decreased, resulting in deterioration of the safety performance of the energy storage device (such as a lithium-ion battery).

In addition, in an example of the present application, pores having a larger average pore size can be obtained by controlling the ratio of Dv90 of the inorganic particles to the thickness of the porous layer. In the electrolyte environment, after the binder (such as polyvinylidene fluoride) in the porous layer swells, more through-holes can be retained, which avoids swelling and pore blockage, ensures a channel for ion transportation, reduces polarization reactions, and improves the rate performance of the energy storage device (such as a lithium-ion battery). The Dv90 of the inorganic particles refers to a particle size which reaches 90% the cumulative volume from the side of small particle size in the granularity distribution on a volume basis.

In some examples of the present application, the ratio of the Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.4 to 1.5. By increasing the ratio of Dv90 of the inorganic particles to the thickness of the porous layer, the mechanical strength of the porous layer is increased, and the porous layer is prevented from undergoing pore blockage due to compression in the preparation or cycle process of the energy storage device (such as a lithium-ion battery), thereby increasing the rate performance of the energy storage device (such as a lithium-ion battery). Conversely, the mechanical properties of the porous layer may be reduced by reducing the ratio of Dv90 of inorganic particles to the thickness of the porous layer, leading to pore blockage of the porous layer due to compression in the preparation and cycle processes of the energy storage device (such as a lithium-ion battery), and the rate performance of the energy storage device (such as a lithium-ion battery) is reduced. In addition, if the ratio of the Dv90 of the inorganic particles to the thickness of the porous layer is too high, the pore size distribution of the porous layer tends to be non-uniform, resulting in a non-uniform surface of the porous layer, which further makes the porous layer easy to detach from the surface of the porous substrate and forms defects in the energy storage device (such as a lithium-ion battery). Moreover, if the ratio of Dv90 of the inorganic particles to the thickness of the porous layer is too high, the adhesive force of the porous layer is reduced, affecting the safety performance of the energy storage device (such as a lithium-ion battery). If the ratio of Dv90 of the inorganic particles to the thickness of the porous layer is too low, the inorganic particles cannot be effectively exposed on the surface of the porous layer, which does not facilitate an exchange between the first solvent in the coating solution and the third solvent in the coagulating solution in the preparation of the porous layer, therefore cannot enhance diffusion, and is not advantageous for the development of the pores.

The method for preparing the separator according to the present application is described below. Firstly, the inorganic particles are mixed with the binder, and then the first solvent is added into the mixture and the mixture is stirred to obtain a uniform coating solution, wherein the binder dissolves in the first solvent. The first solvent is one or more selected

from the group consisting of N-methylpyrrolidone (NMP), dimethylacetamide (DMAC) and dimethylformamide (DMF). The porous layer formed using N-methylpyrrolidone (NMP) has the largest average pore size and the highest porosity; the porous layer formed using dimethylformamide (DMF) has the smallest average pore size and the lowest porosity; and the porous layer formed using dimethylacetamide (DMAC) has an average pore size and a porosity between those of the porous layer formed using N-methylpyrrolidone (NMP) and the porous layer formed using dimethylformamide (DMF). The temperature of the coating solution may be in a range from 15 degrees Celsius to 30 degrees Celsius. The solid content of the coating solution may be in a range from 7% to 25%. Within this range, if the solid content of the coating solution is increased, the viscosity of the coating solution is increased, the exchange rate between the third solvent in the coagulating solution and the first solvent in the coating solution becomes lower, and the average pore size and porosity of the formed porous layer are reduced; conversely, if the solid content of the coating solution is reduced, the average pore size and porosity of the porous layer are increased. However, if the solid content of the coating solution is too high and exceeds this range, the gas permeability of the porous layer does not meet the requirements and cannot satisfy the use for an energy storage device (such as a lithium-ion battery). If the solid content of the coating solution is too low, which is below this range, the strength of the porous layer is decreased, and it is difficult to form a film on the surface of the porous substrate.

Next, the coating solution is uniformly coated on the surface of the porous substrate to form a wet film. The coating method of the coating solution is dip coating. Meanwhile, any other suitable coating process may also be used.

Thereafter, the porous substrate with the wet film is immersed into a coagulating solution for phase transformation, wherein the coagulating solution may include a second solvent and a third solvent, and the second solvent and the third solvent are soluble with each other. The second solvent is one or more selected from the group consisting of N-methylpyrrolidone (NMP), dimethylacetamide (DMAC) and dimethylformamide (DMF), and the third solvent is one or more selected from the group consisting of deionized water, ethanol, propanol, acetone, dimethyl carbonate, and diethyl carbonate. The mass percentage of the second solvent in the coagulating solution may be in a range from 20% to 60%. The average pore size and porosity of the porous layer can be increased by decreasing the content of the second solvent in the coagulating solution. However, if the content of the second solvent is too low, a dense surface film may be formed on the surface of the porous layer that is away from the porous substrate, resulting in deterioration of the gas permeability of the porous layer. If the content of the second solvent is too high, complete pores cannot be formed, or the formed porous layer has a very low average pore size. The temperature of the coagulating solution may be in a range from 15 degrees Celsius to 30 degrees Celsius. The period for phase transformation may be in a range from 10 s to 90 s.

Finally, after the completion of the phase transformation, the wet film is dried to obtain a separator, wherein a porous layer is arranged on the surface of the porous substrate, and inorganic particles are distributed in the pores of the porous layer. The drying temperature may be in a range from 60 degrees Celsius to 70 degrees Celsius, and the drying period may be in a range from 10 minutes to 40 minutes.

According to some examples of the present application, a porous layer is prepared based on a phase transformation (i.e., non-solvent induced phase separation, NIPS) principle, wherein the first solvent in the coating solution is an organic solvent, and the binder (such as PVDF) can be dissolved in the first solvent. The coagulating solution contains a third solvent (deionized water), and the binder is insoluble in the third solvent (deionized water). Therefore, after the coating solution is coated on the porous substrate and then immersed into the coagulating solution, the first solvent in the coating solution is extracted into the third solvent (deionized water) in the coagulating solution, and the binder in the coating solution is solidified and precipitate to form a porous layer.

An energy storage device including the above-described separator is further provided according to the present application, such as a lithium-ion battery. In the application, the lithium-ion battery is only an illustrative example of the energy storage device, and the energy storage device may also comprise other suitable devices. The lithium-ion battery further comprises a positive electrode, a negative electrode, and an electrolyte, and the separator of the present application is placed between the positive electrode and the negative electrode. The positive current collector may be aluminum foil or nickel foil, and the negative current collector may be copper foil or nickel foil.

In the lithium-ion battery described above, the positive electrode comprises a positive electrode material capable of intercalation and deintercalation of lithium (Li) (hereinafter sometimes referred to as "positive electrode material capable of intercalation/deintercalation of lithium (Li)"). Examples of the positive electrode material capable of intercalation/deintercalation of lithium (Li) may include one or more of lithium cobaltate, lithium nickel cobalt manganate, lithium nickel cobalt aluminate, lithium manganate, lithium iron manganese phosphate, lithium vanadium phosphate, lithium vanadium oxide phosphate, lithium iron phosphate, lithium titanate, and lithium-rich manganese-based materials.

In the above-mentioned positive electrode material, the chemical formula of lithium cobaltate may be expressed as $\text{Li}_x\text{Co}_y\text{M}_1\text{O}_{2-z}$, wherein M_1 represents at least one selected from the group consisting of nickel (Ni), manganese (Mn), magnesium (Mg), aluminum (Al), boron (B), titanium (Ti), vanadium (V), chromium (Cr), ferrum (Fe), copper (Cu), zinc (Zn), molybdenum (Mo), tin (Sn), calcium (Ca), strontium (Sr), tungsten (W), yttrium (Y), lanthanum (La), zirconium (Zr), and silicon (Si), and the values of x , a , b , and c are respectively within the following ranges: $0.8 \leq x \leq 1.2$, $0.8 \leq a \leq 1$, $0 \leq b \leq 0.2$, $-0.1 \leq c \leq 0.2$.

In the above-mentioned positive electrode material, the chemical formula of lithium nickel cobalt manganate or lithium nickel cobalt aluminate may be expressed as $\text{Li}_y\text{Ni}_x\text{M}_2\text{O}_{2-y}$, wherein M_2 represents at least one selected from the group consisting of cobalt (Co), manganese (Mn), magnesium (Mg), aluminum (Al), boron (B), titanium (Ti), vanadium (V), chromium (Cr), ferrum (Fe), copper (Cu), zinc (Zn), molybdenum (Mo), tin (Sn), calcium (Ca), yttrium (Sr), tungsten (W), zirconium (Zr), and silicon (Si), and the values of y , d , e , and f are respectively within the following ranges: $0.8 \leq y \leq 1.2$, $0.3 \leq d \leq 0.98$, $0.02 \leq e \leq 0.7$, $-0.1 \leq f \leq 0.2$.

In the above-mentioned positive electrode material, the chemical formula of lithium manganate is expressed as $\text{Li}_z\text{Mn}_{2-g}\text{M}_3\text{O}_{4-h}$, wherein M_3 represents at least one selected from the group consisting of cobalt (Co), nickel (Ni), magnesium (Mg), aluminum (Al), boron (B), titanium (Ti), vanadium (V), chromium (Cr), ferrum (Fe), copper

(Cu), zinc (Zn), molybdenum (Mo), tin (Sn), calcium (Ca), strontium (Sr), and tungsten (W), and the values of z , g , and h are respectively within the following ranges: $0.8 \leq z \leq 1.2$, $0 \leq g \leq 1.0$, and $-0.2 \leq h \leq 0.2$.

The negative electrode comprises a negative electrode material capable of intercalation and deintercalation of lithium (Li) (hereinafter, sometimes referred to as "negative electrode material capable of intercalation/deintercalation of lithium (Li)"). Examples of the negative electrode material capable of intercalation/deintercalation of lithium (Li) may include a carbon material, a metal compound, an oxide, a sulfide, a nitride of lithium such as LiN_3 , lithium metal, a metal which formed an alloy with lithium, and a polymer material.

Examples of carbon materials may include low graphitized carbon, easily graphitized carbon, artificial graphite, natural graphite, mesocarbon microbeads, soft carbon, hard carbon, pyrolytic carbon, coke, glassy carbon, organic polymer compound sintered body, carbon fiber and active carbon. Coke may include pitch coke, needle coke, and petroleum coke. The organic polymer compound sintered body refers to materials obtained by calcining and carbonizing a polymer material such as a phenol plastic or a furan resin at a suitable temperature and, and some of these materials are classified into low graphitized carbon or easily graphitized carbon. Examples of polymeric materials may include polyacetylene and polypyrrole.

Among these negative electrode materials capable of intercalation/deintercalation of lithium (Li), further, materials whose charge and discharge voltages are close to the charge and discharge voltages of lithium metal are selected. This is because of the fact that the lower the charge and discharge voltages of the negative electrode material are, the more easily the battery can have a higher energy density. The carbon material can be selected as the negative electrode material, since the crystal structure of the carbon material has only small changes during charging and discharging. Therefore, good cycle characteristics and high charge and discharge capacities can be obtained. In particular, graphite can be selected, since it can provide a high electrochemical equivalent and energy density.

In addition, the negative electrode material capable of intercalation/deintercalation of lithium (Li) may include elemental lithium metal, metal elements and semi-metal elements capable of forming an alloy together with lithium (Li), alloys and compounds including such elements, etc. In particular, they are used together with the carbon material, since good cycle characteristics and high energy density can be obtained in this case. In addition to alloys comprising two or more metal elements, alloys used herein further include alloys comprising one or more metal elements and one or more semi-metal elements. The alloys may be in the following forms of solid solutions, eutectic crystals (eutectic mixtures), intermetallic compounds, and mixtures thereof.

Examples of metal elements and semi-metal elements may include tin (Sn), lead (Pb), aluminum (Al), indium (In), silicon (Si), zinc (Zn), antimony (Sb), bismuth (Bi), cadmium (Cd), magnesium (Mg), boron (B), gallium (Ga), germanium (Ge), arsenic (As), silver (Ag), zirconium (Zr), yttrium (Y), and hafnium (Hf). Examples of the above-described alloys and compounds may include a material expressed as a chemical formula: $\text{Ma}_x\text{Mb}_y\text{Li}_z$, and a material expressed as a chemical formula: $\text{Ma}_x\text{Mc}_y\text{Md}_z$. In these chemical formulas, Ma represents at least one of metal elements and semi-metal elements capable of forming alloys with lithium, Mb represents at least one of these metal elements and semi-metal elements other than lithium and

Ma, Mc represents at least one of the non-metal elements, Md represents at least one of these metal elements and semi-metal elements other than Ma, and s, t, u, p, q, and r satisfy $s > 0$, $t \geq 0$, $u \geq 0$, $p > 0$, $q > 0$, and $r \geq 0$, respectively.

In addition, an inorganic compound that does not include lithium (Li) may be used in the negative electrode, such as MnO_2 , V_2O_5 , V_6O_{13} , NiS , and MoS .

The lithium-ion battery described above further comprises an electrolyte, which may be one or more of a gel electrolyte, a solid electrolyte, and an electrolyte. The electrolyte comprises a lithium salt and a non-aqueous solvent.

The lithium salt is one or more selected from the group consisting of LiPF_6 , LiBF_4 , LiAsF_6 , LiClO_4 , $\text{LiB}(\text{C}_6\text{H}_5)_4$, LiCH_3SO_3 , LiCF_3SO_3 , $\text{LiN}(\text{SO}_2\text{CF}_3)_2$, $\text{LiC}(\text{SO}_2\text{CF}_3)_3$, LiSiF_6 , LiBOB , and lithium difluoroborate. For example, LiPF_6 is used as a lithium salt, since it can provide high ionic conductivity and improve cycle performance.

The non-aqueous solvent may be a carbonate compound, a carboxylic acid ester compound, an ether compound, other organic solvents or combinations thereof.

The carbonate compound may be a chain carbonate compound, a cyclic carbonate compound, a fluorinated carbonate compound or combinations thereof.

Examples of chain carbonate compounds include diethyl carbonate (DEC), dimethyl carbonate (DMC), dipropyl carbonate (DPC), methylpropyl carbonate (MPC), ethyl propyl carbonate (EPC), methyl ethyl carbonate (MEC) and combinations thereof. Examples of the cyclic carbonate compounds include ethylene carbonate (EC), propylene carbonate (PC), butylene carbonate (BC), vinyl ethylene carbonate (VEC), and combinations thereof. Examples of the fluoro-carbonate compound include fluoroethylene carbonate (FEC), 1,2-difluoroethylene carbonate, 1,1-difluoroethylene carbonate, 1,1,2-trifluoroethylene carbonate, 1,1,2,2-tetrafluoroethylene carbonate, 1-fluoro-2-methylethyl carbonate, 1-fluoro-1-methyl-ethylene carbonate, 1,2-difluoro-1-methylethylene carbonate, 1,1,2-trifluoro-2-methylethyl carbonate, trifluoromethyl ethylene carbonate, and combinations thereof.

Examples of carboxylic acid ester compounds include methyl acetate, ethyl acetate, n-propyl acetate, tert-butyl acetate, methyl propionate, ethyl propionate, γ -butyrolactone, decanolactone, valerolactone, mevalonolactone, caprolactone, methyl formate, and combinations thereof.

Examples of ether compounds include dibutyl ether, tetraethylene glycol dimethyl ether, diethylene glycol dimethyl ether, 1,2-dimethoxyethane, 1,2-diethoxyethane, ethoxy methoxy ethane, 2-methyltetrahydrofuran, tetrahydrofuran, and combinations thereof.

Examples of other organic solvents include dimethyl sulfoxide, 1,2-dioxolane, sulfolane, methyl sulfolane, 1,3-dimethyl-2-imidazolidinone, N-methyl-2-pyrrolidone, formamide, dimethylformamide, acetonitrile, trimethyl phosphate, triethyl phosphate, triethyl phosphate, phosphate esters, and combinations thereof.

The positive electrode, the separator and the negative electrode are sequentially wound, stacked or folded into an electrode assembly, which is then placed into a packaging shell (for example, an aluminum plastic film), an electrolyte is injected, and the chemical conversion and packaging processes are performed to prepare a lithium-ion battery.

It should be understood by those skilled in the art that the above-described method for preparing a lithium-ion battery is only an example. Other methods commonly used in the art can be used without departing from the disclosure of the present application.

Since the separator is wound or stacked together with the positive electrode and the negative electrode, in a case that the above-described porous layer is formed on the surface of the positive electrode or the negative electrode, a corresponding technical effect can also be achieved.

Some specific examples and comparable examples are listed below to better illustrate this application. In the following examples, reagents, materials, and instruments used are commercially available unless otherwise specified. Some of the parameters used in the examples and comparative examples are shown in Table 1 below.

Comparative Example 1

(1) Preparation of Negative Electrode

The negative electrode active material (artificial graphite), the binder (styrene butadiene rubber), and the conductive agent (conductive carbon black (Super P)) are mixed uniformly with the solvent (deionized water) at a mass ratio of 92:3:5 to prepare a negative electrode slurry, then the negative electrode slurry is coated uniformly on both sides of the negative electrode current collector (copper foil), then a negative electrode active material layer is formed by drying the coated negative electrode current collector (copper foil) at 85 degrees Celsius, then cold pressing, slitting and cutting processes are performed and a negative electrode tab is welded so as to obtain a negative electrode.

(2) Preparation of Positive Electrode

The positive electrode active material (lithium cobaltate (LiCoO_2)), the binder (polyvinylidene fluoride (PVDF)), the conductive agent (conductive carbon black (Super P)) are dissolved in the solvent N-methylpyrrolidone (NMP) in a mass ratio of 97:1.5:1.5. A positive electrode slurry is prepared by uniformly stirring the mixture, then the positive electrode slurry is coated uniformly on both sides of the positive electrode current collector (aluminum foil), then a positive electrode active material layer is formed by drying the coated positive electrode current collector (aluminum foil) at 85 degrees Celsius, and then cold pressing, slitting, cutting processes are performed and a positive electrode tab is welded so as to obtain a positive electrode.

(3) Preparation of Separator

Boehmite is mixed with the binder (polyvinylidene fluoride), then the solvent N-methylpyrrolidone is added and the mixture is uniformly stirred to obtain a coating solution, and the volume ratio of the inorganic particles to the binder is 0.8. The coating solution is coated on the porous substrate (polyethylene) by means of dip coating to form a wet film. The porous substrate (polyethylene) with the wet film is immersed into the coagulating solution containing deionized water (third solvent) and N-methylpyrrolidone (second solvent) for phase transformation, with both the coating solution and the coagulating solution being at a temperature of 25 degrees Celsius. After being immersed in the coagulating solution for 30 seconds, the porous substrate (polyethylene) with the wet film is dried in an oven at 60 degrees Celsius to obtain a separator with a porous layer. The mass content of N-methylpyrrolidone (second solvent) in the coagulating solution is 40%. The ratio of Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.2.

(4) Preparation of Electrolyte

A solution prepared with lithium salt LiPF_6 and a non-aqueous organic solvent (ethylene carbonate (EC):diethyl carbonate (DEC):ethyl methyl carbonate (EMC):vinylene carbonate (VC)=8:85:5:2, by a mass ratio) by a mass ratio of 8:92 is used as the electrolyte of the lithium-ion battery.

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(5) Preparation of Lithium-Ion Battery

An electrode assembly is obtained by winding the positive electrode, the separator, and the negative electrode, and then sealing, injection of the electrolyte, forming, and suction molding processes are performed to obtain the lithium-ion battery.

Comparative Example 2

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 3.2 in comparative example 2. As can be seen in FIGS. 3-4, FIG. 3 is an electronic microscope image (3000 times magnification) of pores of a lower surface of the porous layer in comparative example 2, FIG. 4 is an electronic microscope image (10,000 times magnification) of the cross section of the porous layer in the thickness direction in comparative example 2.

Example 1

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.3 in Example 1.

Example 2

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.5 in Example 2.

Example 3

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8 in Example 3. As can be seen in FIGS. 1-2, FIG. 1 is an electronic microscope image (3000 times magnification) of pores of a lower surface of the porous layer in example 3, FIG. 2 is an electronic microscope image (10,000 times magnification) of the cross section of the porous layer in the thickness direction in example 3.

Example 4

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 1.0 in Example 4.

Example 5

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 1.5 in Example 5.

Example 6

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 2.0 in Example 6.

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Example 7

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 3.0 in Example 7.

Example 8

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8, and the volume ratio of the inorganic particles to the binder is 0.2 in Example 8.

Example 9

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8, and the volume ratio of the inorganic particles to the binder is 0.5 in Example 9.

Example 10

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8, and the volume ratio of the inorganic particles to the binder is 1.2 in Example 10.

Example 11

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8, and the volume ratio of the inorganic particles to the binder is 2 in Example 11.

Example 12

The preparation method is the same as that of comparative example 1, except that the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8, and the volume ratio of the inorganic particles to the binder is 3 in Example 12.

Example 13

The preparation method is the same as that of comparative example 1, except that the inorganic particles used in Example 13 are alumina, and the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8 in Example 13.

Example 14

The preparation method is the same as that of comparative example 1, except that the inorganic particles used in Example 14 are magnesium hydroxide, and the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8 in Example 14.

Example 15

The preparation method is the same as that of comparative example 1, except that the inorganic particles used in

Example 15 are titanium oxide, and the ratio of the Dv90 of the inorganic particles in the porous layer to the thickness of the porous layer is 0.8 in Example 15.

is measured. Then, the true volume V2 of the porous layer is equal to $V2 = V20 - V0$, and the porosity of the porous layer is equal to $1 - V2/V1$.

TABLE 1

			Ratio of the Dv90 of the inorganic	Volume ratio	Coagulating solution	
	Solid content in the coating solution	Types of inorganic particles	particles to the thickness of the porous layer	of the inorganic particles to the binder	second solvent	content of second solvent
Example 1	15%	boehmite	0.3	0.8	NMP	40%
Example 2	15%	boehmite	0.5	0.8	NMP	40%
Example 3	15%	boehmite	0.8	0.8	NMP	40%
Example 4	15%	boehmite	1.0	0.8	NMP	40%
Example 5	15%	boehmite	1.5	0.8	NMP	40%
Example 6	15%	boehmite	2.0	0.8	NMP	40%
Example 7	15%	boehmite	3.0	0.8	NMP	40%
Example 8	15%	boehmite	0.8	0.2	NMP	40%
Example 9	15%	boehmite	0.8	0.5	NMP	40%
Example 3	15%	boehmite	0.8	0.8	NMP	40%
Example 10	15%	boehmite	0.8	1.2	NMP	40%
Example 11	15%	boehmite	0.8	2	NMP	40%
Example 12	15%	boehmite	0.8	3	NMP	40%
Example 3	15%	boehmite	0.8	0.8	NMP	40%
Example 13	15%	alumina	0.8	0.8	NMP	40%
Example 14	15%	magnesium hydroxide	0.8	0.8	NMP	40%
Example 15	15%	titanium oxide	0.8	0.8	NMP	40%
Comparative Example 1	15%	boehmite	0.2	0.8	NMP	40%
Comparative Example 2	15%	boehmite	3.2	0.8	NMP	40%

Next, the performances of separator and lithium-ion battery are tested.

(1) Thickness Test of Porous Layer

Separator samples are placed on a thickness gage (Model VL-50 LITEMATIC from Naitutoyo company) using a 5 mm flat bottom probe with a speed of 50 mm/min and a pressure of 0.01N. Each of the separator samples provided with a porous layer is measured for 60 thickness points, and the average thickness is taken as the measured value. The thickness of the porous layer is equal to the thickness of the separator minus the thickness of the porous substrate. In a case that there are two porous films, the thickness is divided by 2 to obtain the thickness of each porous layer.

(2) Gas Permeability Test of Porous Layer

A 100 mm×100 mm separator sample provided with a porous layer is cut and tested using a US Gurley 4110N Densometers with 100 cc test gas, and the period that the test gas passes completely through the separator sample provided with the porous layer is recorded as a Gurley value. The Gurley value of the porous layer is equal to the Gurley value of the separator provided with the porous layer minus the Gurley value of the separator without the porous layer (i.e., a pure porous substrate).

(3) Porosity Test of Porous Layer

The length, width, and thickness of a separator sample provided with a porous layer are measured, and the thickness of the porous layer is obtained by subtracting the thickness of the porous substrate (polyethylene) from the thickness of the separator, and the apparent volume V1 of the porous layer is obtained by calculation. The true volume V20 of the separator sample provided with the porous layer is measured using a true density meter (AccuPyc II Model 1340 Gas Pycnometer, Micromeritics Company), and the true volume V0 of the porous substrate (polyethylene) of the same area

(4) Rate Performance Test of Lithium-Ion Battery

At 25 degrees Celsius, the lithium-ion battery is discharged to 3.0 V at a constant current of 0.2 C, rested for 10 minutes, then is charged to 4.4 V at a constant current of 0.7 C, then is charged to 0.02 C at a constant voltage of 4.4 V, rested for 10 min, and is further discharged at a constant current of 0.2 C until the voltage reaches 3.0 V. The discharge capacity at this time is measured and recorded as Q1. Then, the lithium-ion battery is charged to 4.4V at a constant current of 0.7 C, and then charged to 0.02 C at a constant voltage of 4.4 V, rested for 10 minutes, and then is discharged at a constant current of 2 C until the voltage is 3.0 V. The discharge capacity at this time is measured and recorded as Q2.

2 C/0.2 C rate performance (%) of the lithium-ion battery is equal to $Q2/Q1 \times 100\%$.

(5) Cycle Performance Test of Lithium-Ion Battery

At 25 degrees Celsius, the lithium-ion battery is charged to 4.4 V at a constant current of 0.7 C, then charged to 0.02 C at a constant voltage of 4.4 V, rested for 10 minutes, and discharged to 3.0 V at a constant current of 1 C, rested for 10 minutes. The discharge capacity at this time is measured and recorded as Q3. The above-described steps are regarded as one cycle of charge and discharge. 200 cycles are performed, and the discharge capacity after 200 cycles is recorded as Q4.

The capacity retention rate (%) of the lithium-ion battery after 200 cycles is equal to $Q4/Q3 \times 100\%$.

The test results of examples and comparative examples are shown in Table 2 below.

TABLE 2

	Porosity of porous layer	Gurley value of porous layer (s/100 cc)	Thickness of porous layer (μm)	2 C/0.2 C rate performance	Capacity retention rate after 200 cycles
Example 1	48%	53	2	79.50%	85.70%
Example 2	50%	42	2	83.70%	92.80%
Example 3	52%	30	2	87.50%	95.60%
Example 4	53%	28	2	84.60%	93.10%
Example 5	54%	25	2	82.50%	91.20%
Example 6	56%	20	2	81.70%	85.20%
Example 7	57%	18	2	80.40%	82.70%
Example 8	46%	57	2	81.10%	87.20%
Example 9	49%	43	2	82.80%	91.70%
Example 3	52%	30	2	87.50%	95.60%
Example 10	54%	25	2	83.10%	91.30%
Example 11	56%	21	2	81.50%	88.80%
Example 12	59%	16	2	79.70%	83.80%
Example 3	52%	30	2	87.50%	95.60%
Example 13	50%	43	2	84.40%	92.90%
Example 14	52%	31	2	86.90%	94.30%
Example 15	51%	36	2	84.10%	91.30%
Comparative Example 1	45%	70	2	69.80%	70.50%
Comparative Example 2	60%	16	2	71.30%	72.60%

As can be seen from a comparison among examples 1-7 and comparative examples 1-2, the ratio of Dv90 of the inorganic particles to the thickness of the porous layer has an effect on the rate performance and cycle performance of the lithium-ion battery, and the probability of pore blockage due to compression swelling in the porous layer can be reduced effectively by controlling the ratio of the Dv90 of the inorganic particles to the thickness of the porous layer to be in a range from 0.3 to 3.0, so that the rate performance and cycle performance of the lithium-ion battery can be effectively improved. If the ratio of Dv90 of the inorganic particles to the thickness of the porous layer is too high (for example, comparative example 2), the pore size distribution of the porous layer tends to be non-uniform, the surface of the porous layer is heterogeneous, the porous layer is easily detached from the surface of the porous substrate, and defects are formed in the energy storage device (such as a lithium-ion battery), which is not advantageous for the improvement on rate performance and cycle performance. In addition, if the ratio of Dv90 of the inorganic particles to the thickness of the porous layer is too high, the adhesive force of the porous layer is reduced relatively, affecting the safety performance of the energy storage device (such as a lithium-ion battery). If the ratio of Dv90 of the inorganic particles to the thickness of the porous layer is too low (for example, comparative example 1), the inorganic particles cannot be effectively exposed on the surface of the porous layer, which does not facilitate an exchange of the first solvent in the coating solution and the third solvent in the coagulating solution in the preparation process of the porous layer, cannot enhance diffusion, is not advantageous for the development of the pores, and is also not advantageous for the improvement of the rate performance and cycle performance.

As can be seen from the comparison among Example 3 and Examples 8-12, the volume ratio of inorganic particles to the binder has an effect on the rate performance and cycle performance of the lithium-ion battery. An increase of the volume ratio is advantageous for an exchange of the third solvent in the coagulating solution and the first solvent in the coating solution and the increase of the porosity of the porous layer. If the volume ratio of inorganic particles to the

binder is too low, the porosity of the porous layer is decreased, the gas permeability of the separator deteriorates, and the rate performance of the lithium-ion battery is not significantly improved, which is not advantageous for the improvement of the rate performance and cycle performance. If the ratio of the volume ratio of the inorganic particles to the binder is too high, the adhesive force of the porous layer is reduced, gaps are easily formed between the separator and the electrodes, the hardness of the lithium-ion battery is reduced, and thus the rate performance and the cycle performance are not significantly improved.

As can be seen from the comparison among Example 3 and Examples 13-15, the use of various inorganic particles can improve the rate performance and cycle performance of the lithium-ion battery, and the types of inorganic particles used have less effect on the rate performance and cycle performance of the lithium-ion battery.

It should be understood by those skilled in the art that the above-described examples are only illustrative examples and should not be construed limiting the application. The various changes, substitutions, and alterations could be made to the application without departing from the spirit and scope of the application.

What is claimed is:

1. A separator, comprising: a porous substrate; and a porous layer arranged on a surface of the porous substrate, wherein the porous layer comprises inorganic particles and a binder, and a ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0.
2. The separator according to claim 1, wherein the porous layer has a thickness of 0.2 μm to 10 μm .
3. The separator according to claim 1, wherein the pores have an average pore size of 0.3 μm to 20 μm .
4. The separator according to claim 1, wherein a volume ratio of the inorganic particles to the binder is in a range from 0.2 to 3.0.
5. The separator according to claim 1, wherein the porous layer has a porosity of 20% to 90%.
6. The separator according to claim 1, wherein the inorganic particles are one or more selected from the group consisting of alumina, silica, magnesia, titanium oxide, hafnium dioxide, tin oxide, zirconia, cerium dioxide, nickel oxide, zinc oxide, calcium oxide, boehmite, aluminum hydroxide, magnesium hydroxide, calcium hydroxide, and barium sulfate.
7. The separator according to claim 1, wherein the binder is one or more selected from the group consisting of polyvinylidene fluoride, vinylidene fluoride-hexafluoropropylene copolymer, polyamide, polyacrylonitrile, polyacrylate, polyacrylic acid, polyacrylates, sodium carboxymethylcellulose, polyvinylpyrrolidone, polyvinyl ether, polymethyl methacrylate, polytetrafluoroethylene and polyhexafluoropropylene.
8. An energy storage device, comprising the separator according to claim 1.
9. The energy storage device according to claim 8, wherein the energy storage device is a lithium-ion battery.
10. A method for preparing the separator of claim 1, wherein the method comprises steps of: mixing inorganic particles with a binder to generate a mixture; adding a first solvent into the mixture; stirring the mixture with the first solvent to obtain a uniform coating solution; coating the uniform coating solution onto a surface of a porous substrate to form a wet film;

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the coating solution is in a range from 7% to 25%; and wherein a ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0.

11. The method according to claim 10, wherein the solid content in the coating solution is in a range from 7% to 25%.

12. The method according to claim 10, wherein the coagulating solution comprises a second solvent and a third solvent, and the second solvent has a mass percentage of 20% to 60%.

13. The method according to claim 10, wherein the first solvent is one or more independently selected from the group consisting of N-methylpyrrolidone, dimethylacetamide and dimethylformamide.

14. The method according to claim 10, wherein the porous substrate comprises a polymer film, a multilayer polymer film, or a non-woven fabric formed by any one or more of the following polymers: polyethylene, polypropylene, polyethylene terephthalate, polyphthaloyl diamine, polybutylene terephthalate, polyester, polyacetal, polyamide, polyimide,

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polyetheretherketone, polyaryletherketone, polyetherimide, polyamide imide, polybenzimidazole, polyethersulfone, polyphenylene oxide, cycloolefin copolymer, polyphenylene sulfide, and polyethylene naphthalene.

15. The method according to claim 14, wherein the polyethylene is at least one selected from the group consisting of high density polyethylene, low density polyethylene, and ultrahigh molecular weight polyethylene.

16. The method according to claim 12, wherein the second solvent is one or more independently selected from the group consisting of N-methylpyrrolidone, dimethylacetamide and dimethylformamide, and the third solvent is one or more selected from the group consisting of deionized water, ethanol, propanol, acetone, dimethyl carbonate and diethyl carbonate.

17. The separator according to claim 1, wherein the porous layer has pores formed by the binder, at least a part of the inorganic particles are embedded in the pores.

* * * * *

**CERTIFICATE OF COMPLIANCE
WITH TYPE-VOLUME LIMITATIONS**

Case Nos. 25-1037, -1091

Ningde AmpereX Technology Ltd. v. Zhuhai CosMX Battery Co., Ltd.

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Date: January 8, 2025

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